

**REPORT TO CONGRESS**

**HOSPITAL CAPITAL EXPENSES:  
A MEDICARE PAYMENT STRATEGY  
FOR THE FUTURE**



Prepared by:  
Office of the Assistant Secretary  
for Planning and Evaluation  
Department of Health and Human Services  
March 1986

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## EXECUTIVE SUMMARY

### HOSPITAL CAPITAL EXPENSES: A MEDICARE PAYMENT STRATEGY FOR THE FUTURE

#### PURPOSE OF THE REPORT

In establishing the Medicare hospital prospective payment system (PPS) with the enactment of the Social Security Amendments of 1983 (P.L. 98-21), the Congress deferred action on incorporating capital-related costs (depreciation, return on equity, interest, rentals) into the system until October 1986. This interim decision by the Congress to continue cost-based reimbursement of capital-related expenses was based on the recognition that further study was desirable before these costs could be incorporated into the prospective payment system.

Thus, under the provisions contained in P.L. 98-21, Congress included a requirement (Section 603(a)(1)) that the Secretary of HHS, within 18 months, study capital-related costs and report to Congress on options for incorporating capital into the prospective payment system. The study was to be comprehensive and explore all options "including broadening the DRG payment to include a capital component, establishment of limits modeled on section 223 applicable to capital costs only, and the setting of limits on a statewide basis."

In the interim, however, capital costs are being reimbursed in accordance with the Medicare principles of reasonable cost reimbursement.

#### STRUCTURE OF THE REPORT

The report is composed of four background chapters which provide an orientation to the capital formation process, first, from a historical perspective, second, based on current laws, third, based on experience in other industries, and fourth, from the perspective of health care systems in other countries. The remaining two chapters provide the essential analysis of the report as they examine various options, discuss the findings, and present the recommendation of the Secretary. The following is a brief outline of the chapters of the report:

- I. Hospital Capital Investment Trends
- II. Medicare Capital Reimbursement: Current Practices and Problems
- III. The Role of Other Federal Policies
- IV. What We Can Learn From Other Capital Payment Approaches
- V. Medicare Capital Payment Options
- VI. Recommendation

## CHAPTER SYNOPSIS

The chapter Hospital Capital Investment Trends provides a historical overview of the evolution of the post-war hospital industry, including the growth of capital investment. Between 1946 and 1981, annual medical facility construction increased from \$200 million to \$7.5 billion. This growth in post-war construction was largely attributed to two major developments in the hospital industry, the Hill-Burton program and the expansion of private health insurance.

Prior to World War II, the primary source of capital and operating funds for the hospital industry was derived from philanthropy and patient revenues. With the predicted gap between the nation's existing supply of hospitals and the projected future needs, the Hill-Burton program was enacted into law in 1946 to provide a major source of capital in the post-war years for the construction of voluntary and public hospitals and nursing homes.

The second major factor that provided impetus to improvement of the capital position of hospitals was the emergence of private insurance, which greatly improved public and church-affiliated hospitals' equity position and access to debt financing. Recognition of capital as a legitimate operating expense by third-party payers enabled many hospitals to fund depreciation and interest costs and build internal reserves.

With the enactment of Medicare and Medicaid, the increased demand and revenues resulting from these programs provided the basis for a rapid expansion of hospital capacity and modernization of equipment and plant. This growth in both public and private revenues for hospitals had the overall effect of adding stability to hospital revenues and of reducing the level of risk associated with hospital investment, making capital expansion of investor-owned hospitals more attractive to investors.

With the establishment of mortgage loan programs for voluntary and investor-owned hospitals under Section 242 of the Federal Housing Act, hospitals' access to debt financing for capital expenditures improved dramatically. The most important factor that enabled many hospitals to debt finance was the emergence of tax-exempt revenue bonds. Between 1971 and 1977, tax-exempt financing increased at an average annual rate of 52 percent, adjusted for inflation.

The growth of multi-hospital chains was one byproduct of the expansion of debt financing. With the increasing dependence on debt capital, the incentive emerged for hospitals to pool their revenues to gain more favorable access to the credit market and consequently lower the effective interest rate they paid. Multi-hospital chains were attractive because affiliations provide a larger base of operations over which to spread debt service costs. The investor-owned segment of the industry was

particularly aggressive in taking advantage of multi-hospital affiliations; their incorporation into chains increased by 48 percent between 1976 and 1981.

From the mid-1970s to 1980, hospital capital investment declined in real terms. Though many reasons have been suggested for this decline, it is plausible, especially given the unprecedented levels of capital spending of 1971 and 1972, that hospital capital spending established an equilibrium point, closer to the "normal" level of investment required to replace and modernize existing assets. For the future, there is a fair amount of variation cited in the literature with respect to the estimates of hospital capital requirements.

The chapter Medicare Capital Reimbursement: Current Practices and Problems examines the current Medicare reimbursement policies as they pertain to capital and their relationship to hospital investment. Until the enactment of the prospective payment law, hospitals were reimbursed for the "reasonable direct and indirect costs" of providing covered services. Under the reasonable cost principles of reimbursement, capital costs have been reimbursed in the same manner that they were when the original enabling laws were enacted in 1966, including payment for depreciation on physical plant, buildings and equipment, for interest expense on capital indebtedness, and for a return on equity capital to investor-owned hospitals. Capital expenditures represented approximately 7.4 percent of Medicare payments for total inpatient operating costs in 1981.

The cost pass-through for capital retains all of the problems that had initially prompted the prospective payment system for operating costs, that is, inappropriate incentives for hospitals, detailed cost reporting requirements, and payment levels that are difficult to predict for budget purposes. In reimbursing an individual hospital its incurred costs for capital expenditures, Medicare makes depreciation payments and shares in the interest expense associated with the cost of financing capital investments. This policy insulates hospitals from the financial risk of a poorly conceived or timed investment. Cost reimbursement also fails to provide incentives for hospital management to minimize the overall cost of new investments.

Under cost-based reimbursement Medicare payment amounts for capital to individual hospitals are influenced by three factors: the hospital's actual spending level for capital, the value of its current assets, and its total bed capacity, which may be excessive relative to its occupancy rate. Thus the payments are not directly related to a hospital's actual Medicare patient volume and the needs of its varying patient case-mix. This means that there are large disparities in Medicare payments for capital to different classes of hospitals for reasons unrelated to the care of Medicare patients.

The chapter The Role of Other Federal Policies examines four Federal policies that currently have an impact on hospital investment decisions. In recent years, Federal tax policy has come to play an important role in shaping hospital investment strategies. Under current Internal Revenue Service codes, tax-exempt financing is available to non-profit hospitals qualifying under the provisions of Section 501 (c)(3). Under these provisions, interest derived from bonds issued on behalf of eligible hospitals is exempt from Federal income taxation. A total of 26 States currently have authorities or agencies which can issue tax-exempt revenue bonds for non-profit health care facilities.

Though tax-exempt bonds have emerged as a mechanism of choice for the non-profit hospitals, one effect of this provision in the tax codes has been the loss of revenues to the U.S. Treasury as a result of the proliferation of this form of financing. Between 1968 and 1983, the proportion of non-profit hospital investment financed by debt of all kinds increased from 40 percent to 60 percent. In 1968, the majority of this debt was subject to Federal tax. By 1983, however, well over 80 percent was tax-exempt.

Another Federal program vital to hospital capital investment has been Section 242 of the Federal Housing Act which insures the mortgages which finance hospital construction, modernization, and renovation projects for up to 90 percent of the replacement cost of the project. As of the end of 1984, 226 mortgages had been insured at a total value of \$4.2 billion. Though hospitals are able under this program to obtain loans at somewhat lower interest rates, the overall effect of the program is to encourage debt-financing.

The third major Federal program with a direct impact on capital investment was the certificate of need (CON) program as authorized by the National Health Planning and Resource Development Act of 1974. This Act required all States to establish CON programs to review and approve capital expenditures in plant and equipment proposed by institutional health facilities. CON is a form of market entry regulation which was believed to prevent duplication and reduce excess capacity, thus helping to contain overall system costs. Its effectiveness has been questioned for a number of reasons. Based on previous experience with public utility regulation, there is the possibility of "capture" by the regulated industry. Also, limiting capacity can effectively grant franchises to existing facilities and preclude entry by more efficient competitors.

Thus CON hampers the operation of competitive markets in the planning and construction of hospital beds--beds are built where they may not be needed, and areas that need beds may be unable to build them.



Prior to the enactment of CON, Section 1122 was added to the Medicare and Medicaid statutes by the Social Security Amendments of 1972. Under Section 1122, the Secretary is authorized to withhold Medicare and Medicaid reimbursement for the capital costs of a project that a designated State planning agency finds is inconsistent with its own standards. Although Section 1122 is similar in structure to CON, in operation it is quite different. While CON regulates market entry, Section 1122 functions as a reimbursement sanction. A further distinction is that State participation in the 1122 program is optional, with only 16 States and the Virgin Islands currently participating.

There are compelling arguments to eliminate both 1122 and CON to save funds and to generally reduce regulatory burden. Both programs have proven ineffective in controlling overall hospital costs. Moreover, it is not likely that the elimination of either Federal program would affect Medicare cost or hospital capacity, since States that view these programs as strong and effective are expected to continue them regardless of Federal support.

The chapter What We Can Learn From Other Capital Payment Approaches examines the ways in which capital is defined and paid for in other industries, in the hospital sectors of other countries, and in States with Medicare waivers.

The primary source of experience for the non-hospital industry on the cost of capital and how these costs are allocated is derived from the rate-regulated industries, particularly those under cost-of-service regulation. These industries were examined because the government or rate-regulating body must determine the appropriate payment for capital as well as for operating cost in setting consumer prices.

From this review, it is clear that it would be a mistake for Medicare to adopt a method of paying for capital based on the approaches taken in regulated industries. The fundamental differences in the hospital industry and the nature of the services and products provided make comparisons of the two difficult. The public utility model of regulating capital has distinct drawbacks, which makes it unattractive for capital payment for hospitals.

The examination of hospital financing in six European countries and Canada found that there are two distinct mechanisms used to channel funds to hospitals, central budgeting and prospectively set per diem rates. In general, the findings point to the all but obvious conclusion that the United States cannot adopt the approaches taken to capital financing in these countries. Most of these systems represent a much greater consolidation of government purchasing power than exists in the United States.

Congress directed the Department to examine the capital payment approaches adopted by the States with Medicare hospital payment system waivers. This review found that none of the four States,

Maryland, New Jersey, New York and Massachusetts, have departed completely from hospital-specific methods of paying for capital. New York and Massachusetts value capital in much the same way as the current cost-based Medicare policy. Maryland and New Jersey use a per-bed and per-admission formula, respectively, for some or all movable equipment, and pay for buildings and fixed equipment according to individual hospital cost, using both replacement allowances and pass-throughs.

These State programs are complex to administer, require a detailed review of hospital budgets and volume changes, and rely on health planning and regulations to constrain overall expenditures. In general, none of these State systems provide a useful model to guide the development of an approach for incorporating capital into the national Medicare prospective payment system.

The chapter Medicare Capital Payment Options summarizes the choices in methods of payment for hospital capital-related costs under the Medicare program. The basic choices are cost-based reimbursement versus incorporating payment for capital into the average, prospective payment rates. There are many methodological variations possible under each alternative. For instance, one could modify cost reimbursement to include either reimbursement limits or health planning controls.

Incorporating payment for capital into the DRG-based prospective rates requires decisions on the basic mechanism, the level and distribution of payments, and the structure of a transition period, if any. The term "mechanism" refers to the conceptual approach or overall system design for incorporating capital. Mechanisms include using a uniform percent add-on or adopting an all-inclusive rate that does not distinguish between capital and operating costs. The term "level" refers to the standardized amounts which are the average dollar amounts per case against which a DRG weight is multiplied to obtain actual reimbursement for a specific discharge. An average level for capital can be derived based on explicit decisions regarding which components of capital costs should continue to be reimbursed under the Medicare program. The term "distribution" refers to the DRG weights, which collectively represent relative, average resources used by hospitals across different DRGs in providing inpatient care. Each individual DRG weight represents average resources or inputs used across all cases within that DRG. Just as average operating inputs vary in intensity across DRGs, so do capital inputs. It is also important to develop a transition policy to ease the effects on hospitals of changes in cash flow resulting from a changed capital payment policy, and to give hospitals time to adapt.

The Recommendation chapter completes the body of the report by setting forth the criteria for judging alternatives for incorporating payments for capital into the prospective payment system.



In order to be a prudent purchaser of hospital services, Medicare should correct for the inefficiencies created by its current reimbursement policy, but it must do so without reducing either the quality of care provided or access to that care for Medicare beneficiaries.

As requested, we recommend to the Congress a proposal that would accomplish the following:

- (i) Reward hospitals for treating Medicare patients and not for accessing the capital markets by establishing an all-inclusive prospective payment amount that would pay hospitals an average amount per Medicare discharge. This payment amount would not distinguish between payments for capital and operating expenses.
- (ii) Reduce Medicare payments to hospitals for capital by establishing a national payment amount that does not include payments for return on equity for investor-owned hospitals and payments to hospitals for interest on funded depreciation.
- (iii) Provide for an adequate transition period from current cost-based reimbursement to the prospective payment system in order to allow hospitals the necessary time to adjust to the new payment system while assuring that hospitals do not over-invest during the transition.
- (iv) Continue cost reimbursement for capital for hospitals that are subject to special rules under the prospective payment system for operating costs.

#### Outline of the Recommended Policy

Mechanism: An amount for capital will be built into the non-labor component of the standardized payment amounts for rural and urban hospitals (separately). This amount combined with the current non-labor amount will constitute the standardized payment amount for Medicare PPS hospitals. After inclusion in the standardized amount, capital payments will be indistinguishable from other non-labor payments. Table VI-I depicts how the payment mechanism would operate when fully implemented.

Payment Levels: During the transition, separate standardized capital payment amounts will be established for rural and urban hospitals, as designated by current PPS regulation. Separate rates for urban and rural hospitals is consistent with current PPS policy for operating expenses. These standardized payment amounts for fiscal year 1987, the first transition year, will be established from 1983 audited cost report amounts updated to 1986 by a capital market basket for fiscal years 1984, 1985, and 1986. Aggregate return on equity and interest offset amounts will be excluded from these computed standardized amounts.

Transition: Separate payment levels for depreciation and interest, and for Return on Equity (ROE) and Interest Offsets (IO) will be established for each hospital based on audited 1986 cost reports. During the transition these two unique amounts will be updated from year to year after 1986 using the actual hospital capital market basket. In each year of the transition a hospital will be paid the lesser of the sum of their two payment amounts, or their actual audited capital costs, after the appropriate blend proportions have been applied.

The transition period is designed to fully implement an all inclusive prospective rate for Medicare by 1991. The transition involves separate schedules for phasing out hospital specific payments (HSP) for depreciation and interest, and for return on equity and interest offsets on funded depreciation and charitable contribution payments. The blending proportions for the two schedules are depicted below:

Blending Percentage for the Transition Period

	National Rate <u>Portion</u>	HSP Depreciation Interest <u>Portion</u>	HSP Return on Equity Interest Offset <u>Portion</u>
FY 1987	20%	80%	75%
FY 1988	40%	60%	50%
FY 1989	60%	40%	25%
FY 1990	80%	20%	0%
FY 1991	100%	0%	0%

For example, hospitals in 1987 will receive 75% of their ROE-IO plus 80% of their depreciation and interest plus 20% of the national rate. In 1991, they will receive a single payment for each discharge equal to the sum of the national rates for capital and for operating costs. Table VI-2 depicts graphically how the transition period would work.

Hospitals will be paid their actual costs for Depreciation, Interest, ROE, and Interest Offsets in 1986 under current reasonable capital cost procedures. The transition to the national rate will be implemented beginning October 1986 according to each hospital's accounting year.

Distribution: DRG weights published in the Department's September 1985 regulation will be used. These weights are based on hospital charges and reflect each hospital's estimate of the relative operating and capital resource consumption associated

with each Medicare service, discounted or enhanced by the market value of the service category.

Update Factor: A capital component will be incorporated into the hospital market basket. The PPS standardized amounts will be updated during the transition and subsequent years by the DRG update factor as determined by the Secretary of HHS. The Secretary will take into consideration the capital needs of the hospital industry when establishing this factor. The HSP amounts during the transition will be updated each year by the capital component of the hospital market basket as discussed below. Capital related items will be incorporated into the Medicare hospital market basket. Disaggregation of the standardized amounts will be accomplished as it is under current policy. The relative labor and nonlabor proportions found in the market basket will be applied to the standardized amounts to produce the separate labor and nonlabor amounts used to make PPS payments to hospitals.

Given the relative magnitude of Medicare revenues to total hospital revenues, and the incentives of the prospective payment system for cost-conscious behavior, a highly regulatory health planning apparatus is unnecessary. The financial discipline imposed by the prospective payment system will have considerably more profound and successful effects than market entry regulation or post-hoc reimbursement penalties. Incorporating Medicare payments for capital into prospective payment rates will reinforce the positive incentives for hospital efficiency and quality demonstrated by the prospective payment system now in effect for operating costs.

## PREFACE

### SOURCES OF INFORMATION

The Office of the Assistant Secretary for Planning and Evaluation (OASPE) conducted the study of hospital capital finance and prepared this report. In preparing this report to Congress, OASPE sought information and options from interested groups and individuals, commissioned a number of special studies, and conducted extensive analyses of issues internally.

In July 1983, OASPE sought written contributions from major interest groups concerned with hospital capital policy. Over the last year, specific proposals were received from seven groups:

- o American Hospital Association
- o Healthcare Financial Management Association
- o National Committee for Quality Health Care
- o Washington Business Group on Health
- o Protestant Hospital Association
- o American Health Planning Association
- o National Council on Health Planning and Development

Five more groups submitted principles or comments. In addition, academic analyses have been reviewed. The Department considered each of them carefully in formulating its recommendation. The major proposals are included among the options analyzed in this report.

The Department commissioned several studies that contributed to this report. One was a contract report by ICF, Inc., Evaluation of Community Hospital Capital Requirements and the Impact of Changes in Federal and State Policies (#HHS 100-82-0077). ICF, Inc., examined existing estimates of capital requirements and, via a subcontract with the Intergovernmental Health Policy Project, surveyed State policies affecting capital investment. A simulation model for hospital investment was developed that enabled us to estimate the impact of options. A technical advisory committee consisting of hospital capital experts within and outside the Department contributed to the design and development of specifications of the model. The model, its assumptions, and the methodology used in the simulations are described in Appendix A.

The report also draws upon the following studies performed under contracts and grants:

- o Data Resources, Inc. (DRI): Construction of a Hospital Capital Market Cost Index for Medicare PPS Application.
- o Urban Systems Research and Engineering: Short Term Evaluation of Selected Hospital Capital Finance Issues (HHS 100-82-0038).
- Harold A. Cohen and Jack C. Keane: Approaches to Setting the Level of Payment for Hospital Capital Costs Under a Prospective Payment System.
- Brian Kinhead: Historical Trends in Hospital Capital Investment.
- Frank A. Sloan: Capital Payment Policies in Other Industries: Lessons for Hospitals.
- Uwe Reinhardt: Financing the Hospital: The Experience Abroad.
- o Center for Health Economics Research: Treatment of Capital Costs in Four Medicare-Waivered States: Maryland, New Jersey, New York and Massachusetts (supported by HCFA Grant #18-P-98267/1-01).

HHS staff performed the following work:

- o An analysis of the distribution of Medicare total and capital payments by hospital characteristics under current policy and alternative assumptions.
- o Estimation of the proportion of Medicare capital payments attributable to building and fixed equipment vs. major movable equipment investment.
- o A comparison of the financial advantages of for-profit and non-profit hospitals. (See Chapter II.)

#### SCOPE OF STUDY

The report analyzes options for a new Medicare capital payment policy for inpatient hospital services. It is based on laws, programs and other factors affecting hospital capital investment as they existed at the time the report was prepared.

The report, following the legislative mandate to address only the inpatient portion of hospital costs, does not include recommendations for the payment of capital associated with outpatient services. The appropriateness of extending prospective payment to hospital outpatient services has not yet been determined.

This report does not include recommendations regarding the payment of capital costs for skilled nursing facilities (SNFs) nor would this analysis of hospital capital financing issues be adequate for a review of the nursing home sector. There are significant differences in supply and demand, ownership and financing of SNFs as compared with hospitals. SNFs tend to be smaller than hospitals, their users are more homogeneous, and they do not have the same need for complex technology. Nearly 75 percent of SNFs are proprietary, compared with 12 percent of hospitals, and they do not face the same problems in gaining access to capital markets. The Health Care Financing Administration, within HHS, is preparing a separate report to Congress on the appropriateness of applying a prospective payment methodology to SNF services.

#### DEFINITIONS

The term "capital" is used loosely to refer to several related but distinct concepts.

Real or physical capital denotes actual physical assets: buildings and equipment.

Financial capital refers to money and other liquid assets available for spending on real capital.

Working capital denotes money and other liquid assets that an enterprise must keep on hand to meet short-term obligations such as payroll or payments to suppliers.

Capital costs of hospitals have been defined by the Medicare program to include payment for depreciation on physical plant, buildings and equipment; interest expense on capital indebtedness; and payment of a return on equity capital to investor-owned institutions.

In this report the unmodified term "capital" usually refers to physical capital.



## CHAPTER I

### HOSPITAL CAPITAL INVESTMENT TRENDS

This chapter highlights historical capital investment trends from 1946 to the present among public, voluntary (i.e., private, nonprofit), and investor-owned hospitals, and discusses the nation's future hospital capital requirements under different assumptions. For historical information, it draws heavily on the report prepared for the Assistant Secretary for Planning and Evaluation (ASPE) by Brian Kinkead of Johns Hopkins University entitled Historical Trends In Hospital Capital. For future estimates, the primary source is a report for ASPE by ICF, Inc., entitled Hospital Capital Requirements and the Impact of State and Federal Policies.

Tables I-1 through I-11 present data from the 1940s through the present and projections for future capital needs. Tables are referenced throughout this chapter and include data on the magnitude, source and use of capital over the years.

Between 1946 and 1984, annual medical facility construction increased by 3650 percent, from \$200 million to \$7.5 billion. In 1972 constant dollars, the respective figures are \$400 million and \$3.2 billion; an increase of 800 percent. While there have been peaks and valleys in investment, the trend is up. Over the past 40 years, major shifts in capital spending paralleled the development of new financing mechanisms. The first two sections of this chapter focus on events over two time periods. Between 1946 and 1966 (the years between the end of World War II and the inception of Medicare and Medicaid), enactment of the Hill-Burton program and the emergence of private health insurance greatly influenced capital spending. From 1966 to the present, significant influences included the establishment of the Medicare and Medicaid programs, the increasing availability of tax-exempt financing, and the growth of multi-hospital chains. The third section presents estimates of future capital requirements under different sets of assumptions and discusses the reasons for the large disparity in the projections.

#### CAPITAL GROWTH IN THE POST-WORLD WAR II PERIOD

Substantial growth in the hospital industry and steadily increasing hospital capital expenditures began after World War II. Lack of capacity to deal with the nation's health needs was considered a significant issue, leading to the establishment of the Hill-Burton program. Private health insurance coverage also expanded. The increasing stability of revenue sources fostered capital expansion.

As depicted in Table I-1, between 1946-1966, the value of medical facility construction increased from \$200 million to \$2.1

billion, representing a 12.5 percent average annual rate of increase. In 1972 dollars, this amounts to an increase from \$500 million to \$3 billion, representing an average annual rate of increase of 10.5 percent. Toward the end of the period, between 1960 and 1966, when the economy as a whole was undergoing sustained growth, the magnitude of annual medical facility construction doubled from approximately \$1 billion to \$2.1 billion (\$1.5 to \$3 billion in 1972 dollars).

As indicated in Tables I-3, 4, 5 and 6, voluntary and public hospitals were the primary beneficiaries of increased access to financial capital. Admissions to investor-owned hospitals increased by about 31 percent (from 1.4 million admissions in 1946 to 1.9 million in 1966) while admissions to public and voluntary hospitals increased by 115 percent (from 2.7 million to 5.8 million) and 102 percent (from 9.6 million to 19.2 million), respectively.

Another way to look at capital investment is to examine the annual percentage change in net plant assets of hospitals. This measure includes investment in equipment and bed capacity. Tables I-7 and I-8 show these data for the three types of hospitals. The average annual increase 1950-1966 for voluntary hospitals was 8.1 percent, for public hospitals 8.8 percent, and for investor-owned hospitals 5.7 percent. Table I-9 illustrates the growth of health insurance as an important source of hospital revenue.

The following discussion highlights the ways in which hospital capital trends were influenced by the Hill-Burton program and the growth of private health insurance during the 1946-1966 period.

The Hill-Burton Program. Prior to World War II, reliance on philanthropy and patient revenues as sources of capital and operating funds left the hospital industry vulnerable to changes in economic conditions. Thus, the period from the Depression through World War II was one of financial instability. Nongovernmental hospitals, which relied almost exclusively upon philanthropy, were hit hard by the Depression. The number of nongovernmental hospitals registered with the American Medical Association decreased by nearly 12 percent between 1928 and 1938. In contrast, the public hospital sector increased its bed supply by more than 40 percent and experienced rapid growth in the 1930s through New Deal public works programs. During World War II, most of the nation's resources were diverted to the war effort, and only military hospitals experienced growth.

Immediately following the war, attention turned to civilian health service needs. At the same time, hospitals were emerging as centers for diagnosis as well as treatment of acute illness. This led to the creation of the Commission on Hospital Care under

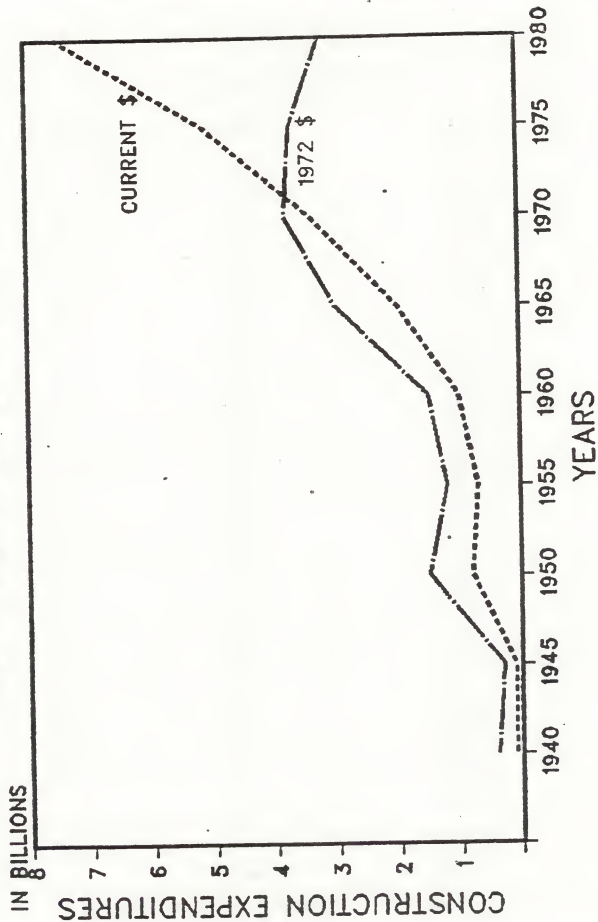


TABLE I-1  
 NATIONAL EXPENDITURES FOR CONSTRUCTION OF MEDICAL FACILITIES  
 (IN BILLIONS)

<u>YEAR</u>	<u>CURRENT \$</u>	<u>1972 \$</u>
1940	0.1	0.4
1945	0.1	0.3
1946	0.2	0.5
1947	0.2	0.4
1948	0.3	0.6
1949	0.7	1.3
1950	0.8	1.5
1951	0.9	1.6
1952	0.9	1.5
1953	0.7	1.2
1954	0.7	1.2
1955	0.7	1.2
1956	0.6	0.9
1957	0.9	1.4
1958	1.0	1.5
1959	1.0	1.5
1960	1.0	1.5
1961	1.1	1.7
1962	1.4	2.1
1963	1.5	2.3
1964	1.8	2.7
1965	2.0	3.0
1966	2.1	3.0
1967	2.1	2.9
1968	2.2	2.9
1969	2.9	3.5
1970	3.4	3.8
1971	4.0	4.2
1972	4.2	4.2
1973	4.3	4.0
1974	4.7	3.7
1975	5.1	3.7
1976	5.3	3.7
1977	5.3	3.4
1978	5.3	3.0
1979	5.7	2.8
1980	6.5	2.9
1981	7.5	3.2
1982	8.3	
1983	9.1	
1984	9.0	
1986*	9.2	
1988*	10.2	
1990*	11.5	

\* Projection

# NATIONAL EXPENDITURES FOR CONSTRUCTION OF MEDICAL FACILITIES



SOURCE: HCFA AND U.S. CENSUS BUREAU

TABLE I-3  
FACILITIES, BEDS AND ADMISSIONS BY HOSPITAL OWNERSHIP FROM  
1946-1981

COMMUNITY HOSPITALS

<u>YEAR</u>	<u>FACILITIES</u>	<u>BEDS</u> (Thousands)	<u>ADMISSIONS</u> (Thousands)
1946	4444	473	13655
1951	5066	516	16677
1956	5299	586	20107
1961	5460	659	23375
1966	5812	768	26897
1971	5865	867	30142
1976	5956	961	34068
1981	5879	1007	36494
1982	5863	1015	36429
1983	5843	1021	36201
1984	5814	1020	35202

VOLUNTARY HOSPITALS

<u>YEAR</u>	<u>FACILITIES</u>	<u>BEDS</u> (Thousands)	<u>ADMISSIONS</u> (Thousands)
1946	2584	301	9554
1951	2922	345	11946
1956	3165	405	14690
1961	3305	485	16974
1966	3440	533	19263
1971	3363	604	21515
1976	3368	671	24098
1981	3356	706	25955
1982	3354	712	25908
1983	3363	718	25837
1984	3366	717	25246

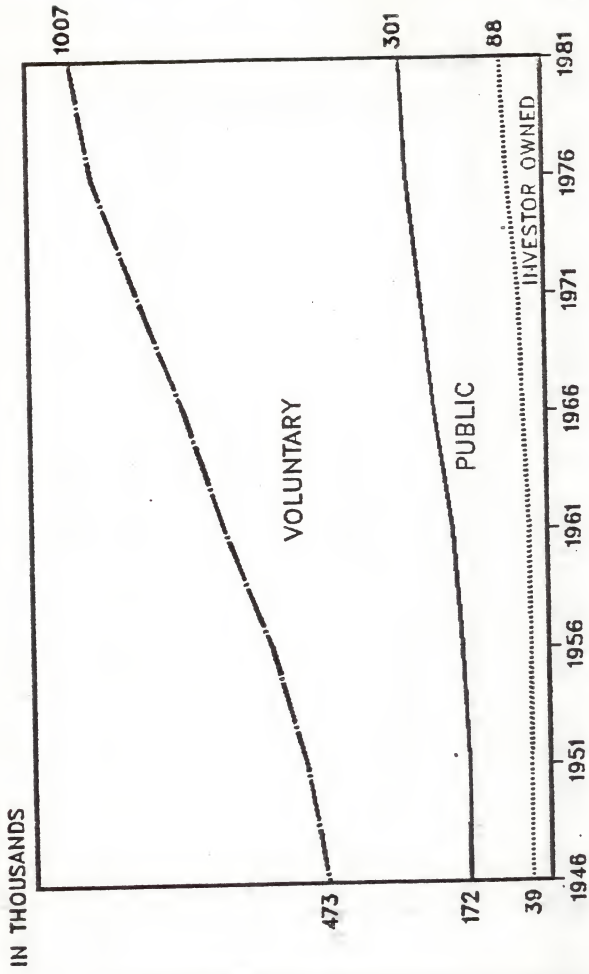
TABLE I-3 (cont'd)  
INVESTOR-OWNED HOSPITALS

<u>YEAR</u>	<u>FACILITIES</u>	<u>BEDS</u> (Thousands)	<u>ADMISSIONS</u> (Thousands)
1946	1076	39	1408
1951	1155	39	1545
1956	981	37	1495
1961	848	38	1566
1966	852	48	1855
1971	750	54	2088
1976	752	76	2734
1981	729	88	3239
1982	748	91	3316
1983	757	94	3294
1984	786	100	3314

PUBLIC HOSPITALS

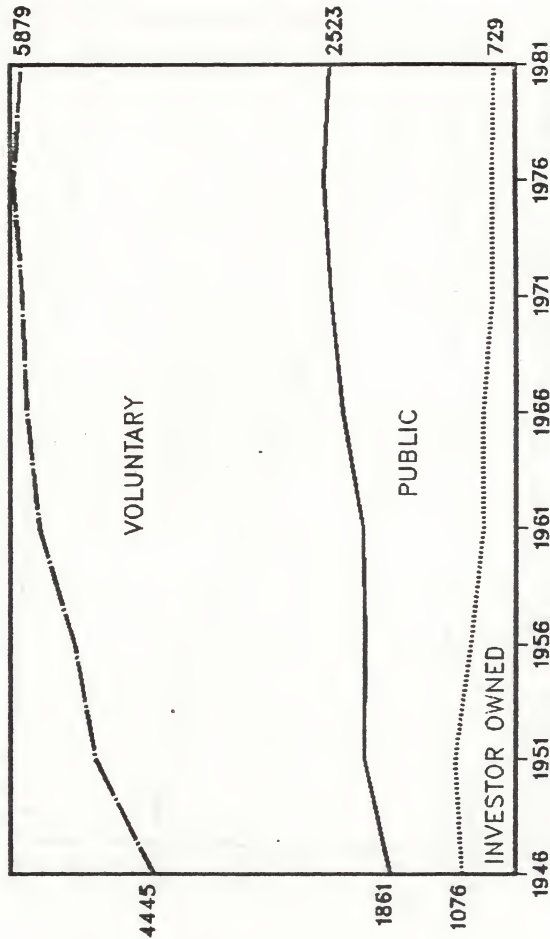
<u>YEAR</u>	<u>FACILITIES</u>	<u>BEDS</u> (Thousands)	<u>ADMISSIONS</u> (Thousands)
1946	785	133	2694
1951	989	132	3186
1956	1153	145	3922
1961	1307	162	4835
1966	1520	188	5778
1971	1752	209	6540
1976	1836	214	7237
1981	1794	213	7299
1982	1761	212	7205
1983	1723	209	7064
1984	1662	203	6642

# BEDS BY HOSPITAL OWNERSHIP 1946-1981



SOURCE: AHA HOSPITAL STATISTICS

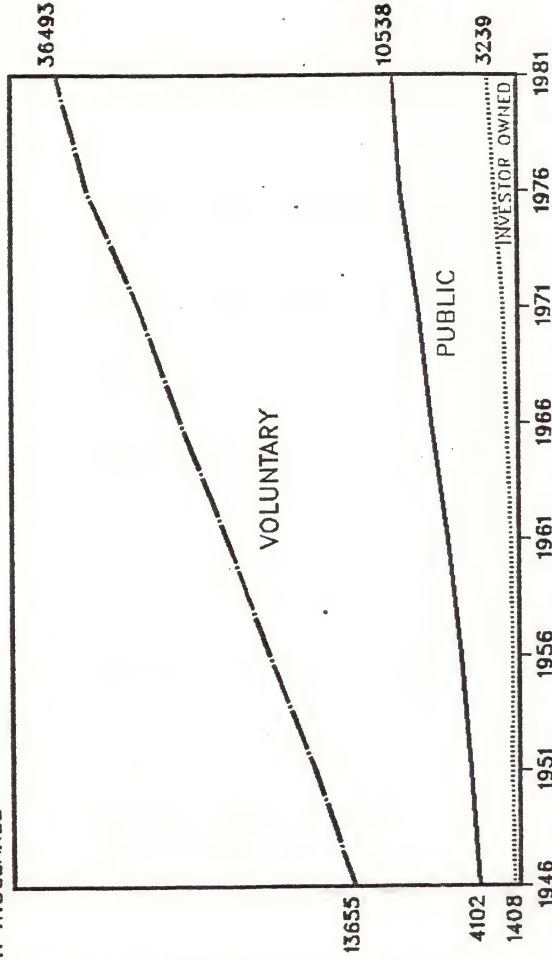
# **FACILITIES BY HOSPITAL OWNERSHIP 1946-1981**



SOURCE: AHA HOSPITAL STATISTICS

# ADMISSIONS BY HOSPITAL OWNERSHIP 1946-1981

IN THOUSANDS



SOURCE: AHA HOSPITAL STATISTICS

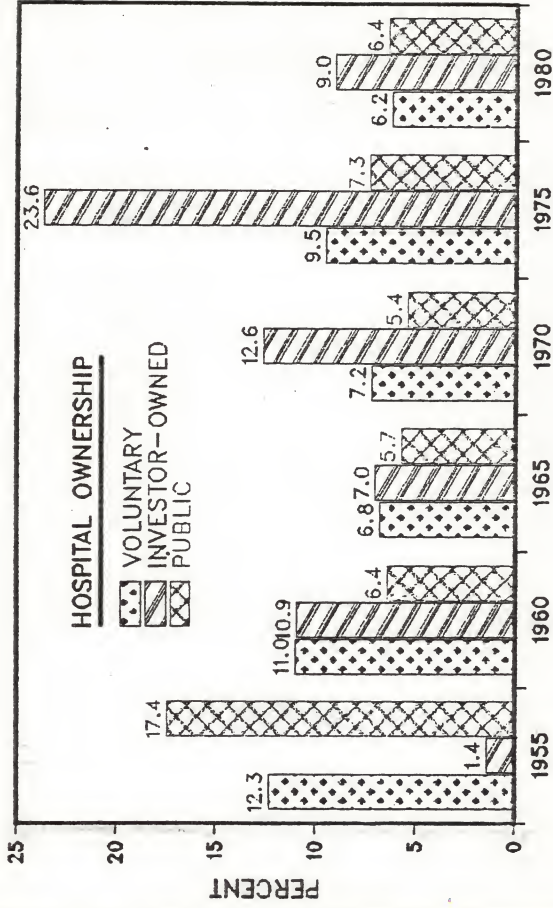
TABLE I-7  
ANNUAL PERCENTAGE CHANGE  
IN NET PLANT ASSETS AND NET PLANT ASSETS PER CAPITA  
BY TYPE OF HOSPITAL AND YEAR

YEAR(S)	----- CHANGE NET PLANT ASSETS -----				----- CHANGE NET PLANT ASSETS PER CAPITA -----			
	COMMUNITY	VOLUNTARY	INVESTOR-OWNED	PUBLIC	COMMUNITY	VOLUNTARY	INVESTOR-OWNED	PUBLIC
1950/1955	13.3	12.4	1.4	17.4	11.2	10.4	-0.4	15.3
1955/1960	9.5	11.0	10.9	6.4	8.0	9.2	9.1	4.7
1960/1961	8.3	5.9	8.0	16.0	6.1	3.8	5.8	13.7
1961/1962	6.1	7.2	7.9	2.6	4.5	5.6	6.2	1.1
1962/1963	7.6	8.3	18.0	4.3	6.1	6.8	16.3	2.8
1963/1964	8.4	8.7	18.2	8.0	7.0	6.8	16.6	6.5
1964/1965	10.8	10.5	16.5	14.2	9.5	9.1	-7.9	12.8
1965/1966	5.5	7.4	-12.5	1.2	4.3	6.3	13.2	0.1
1966/1967	7.2	7.4	21.6	8.8	6.8	6.2	20.6	7.8
1967/1968	7.5	9.3	25.2	0.8	6.4	8.8	-5.5	0.2
1968/1969	9.7	10.0	25.2	10.7	8.6	7.9	24.0	
1969/1970	9.7	10.7	14.5	7.3	8.8	9.1	23.4	6.3
1970/1971	10.7	10.7	14.3	10.3	9.1	9.1	12.7	8.7
1971/1972	11.2	11.5	38.3	9.9	10.8	10.4	37.0	8.8
1972/1973	11.8	11.8	34.0	9.6	10.9	10.5	32.9	8.8
1973/1974	11.8	10.4	4.4	9.5	11.0	9.9	43.2	8.7
1974/1975	11.5	10.5	9.9	7.8	10.7	12.3	5.8	5.7
1975/1976	12.5	11.5	20.6	8.3	10.5	10.7	19.5	7.3
1976/1977	13.5	13.5	18.6	9.9	12.0	12.4	17.4	8.8
1977/1978	4.2	3.8	7.5	4.7	2.9	2.7	7.1	3.8
1978/1979	4.8	3.8	7.5	4.7	2.9	2.5	6.3	3.5
1979/1980	11.3	10.3	12.0	12.9	10.4	10.0	11.0	12.0



# PERCENT CHANGE IN NET PLANT ASSETS

1955 - 1980



SOURCE: AHA, ANNUAL HOSPITAL SURVEYS

TABLE I-9  
THIRD PARTY PAYMENTS AS A PROPORTION OF TOTAL  
HOSPITAL EXPENDITURES FROM 1950-1982  
(IN BILLIONS)

<u>YEAR</u>	<u>HOSPITAL EXPENDITURES</u> (\$ In Billions)	<u>PROPORTION THIRD PARTY</u> (Percentage)
1950	3.9	70.1
1955	5.9	77.7
1960	9.1	80.2
1965	14.0	83.2
1966	15.8	83.6
1967	18.4	89.4
1968	21.1	89.1
1969	24.2	89.3
1970	28.0	88.6
1971	31.0	89.9
1972	35.2	90.0
1973	38.9	89.9
1974	45.0	89.9
1975	52.4	92.1
1976	60.9	91.5
1977	68.1	92.1
1978	76.2	92.7
1979	87.0	92.7
1980	101.3	92.6
1981	117.9	92.2
1982	134.7	92.4
1983	148.8	91.4
1984	157.9	91.3

the auspices of the American Hospital Association and the Commonwealth Fund. Predicting a large gap between the nation's hospital stock and future health requirements, the Commission recommended implementation of a construction grant program to make hospital care available to every community in the country.

This recommendation was enacted by Congress as the Hospital Survey and Construction Act of 1946, or the Hill-Burton Act, named after Lister Hill and Harold Burton. The Hill-Burton program was a major impetus for capital spending in the post-war years. It provided grants to States for a number of purposes including the survey of State needs; the development of state-wide plans for health facility construction; and to assist with the construction of voluntary and public hospitals and nursing homes. For the first time, many small communities could equip themselves with modern hospital facilities. The program was intended to help bring facilities to small communities lacking adequate resources. Funds were allocated to States on the basis of population and per capita income. Facilities were required to provide matching funds, which could be obtained by community fund raising, State/local appropriations, or mortgage loans.

The Hill-Burton program disbursed over \$3 billion in Federal funds to hospitals and long term care facilities between 1947 and 1968. These grants produced an additional \$7 billion in matching funds and accounted for 40 percent of the \$24.6 billion spent on construction during this period. In 1946, there were 473,000 short-term acute care hospital beds. To this Hill-Burton added 135,000 hospital beds in new facilities and facilitated the replacement, alteration and addition of 278,000 beds in existing facilities. In all, Hill-Burton was responsible for 60 percent of the total increase in hospital beds during this period. As intended, rural areas were the prime beneficiaries, with over 60 percent of funds going to communities of 50,000 or fewer persons.

Hill-Burton was important in changing the way hospitals raised and used capital funds. By requiring community involvement in health planning and hospital construction, Hill-Burton increased public awareness of hospital needs and made it easier for hospitals to raise funds. By establishing construction standards for hospitals, Hill-Burton improved the quality of hospital facilities and raised public expectations as to the services a hospital should maintain. Hill-Burton grants enabled hospitals to undertake more lavish and extensive capital projects than had been possible when philanthropic dollars and local government tax revenues were the sole sources of funding. The program was a catalyst in stimulating long-term borrowing as well since it supplemented a hospital's capital fund thereby improving its credit rating.

Private Insurance. The other major influence on the capital position of the hospital industry in the years following World

War II was the growth in health insurance coverage. Health insurance first emerged as an effort by hospitals to deal with Depression-induced revenue shortfalls. Its popularity accelerated in the war years, as unions pushed for health insurance benefits in lieu of wage increases. By 1950, over 50 percent of the population had some health insurance coverage compared with 9 percent in 1940. The majority of the insured belonged to Blue Cross plans, which generally operated cost-based hospital reimbursement systems that included capital as an allowable expense. There were wide regional variations in insurance coverage, however, as most plans were concentrated in the Northeast and Midwest and few were in the South or West.

The emergence of health insurance greatly improved public and church-affiliated hospitals' equity position and access to debt financing. Recognition of capital as a legitimate operating expense by third party payers enabled many hospitals to fund depreciation and interest costs and build internal reserves. These reserves could be used to finance the replacement of assets whose useful life had expired. Internal reserves also could be used as leverage in the capital market, making it easier for some hospitals to obtain loans from commercial banks. Hospital reliance on mortgage loans increased by 500 percent in the 1950s and provided approximately 25 percent of all construction funds in 1965.

Lenders were skeptical of hospital debt capacity. They required a 50 percent equity contribution if loans had to be secured with hospital assets for which there was virtually no secondary market. Tax-exempt bonds did not become available until 1963. However, loans to public hospitals could be secured with tax revenues, and loans to religious hospitals could be backed by other church assets. Voluntary and investor-owned hospitals had no equivalent way of securing debt. As a result, in 1965, mortgage loans accounted for 38 percent of construction funds in religious hospitals, but only 16 percent in independent voluntary hospitals, which relied primarily on Hill-Burton grants and private contributions for their capital funds.

Although investor-owned hospitals could not take advantage of the lending opportunities used by public institutions, they were financially much more stable. In the 1950s and 1960s, investor-owned hospitals relied largely on debt financing to gain access to capital, with equity financing and revenues from operations supplementing their capital requirements.

In addition to increasing revenues, the emergence of health insurance also increased the demand for hospital services. The quality of hospital room and board services was improved. Multi-bed wards were replaced by semi- and private rooms. Nutrition services were enhanced. Modernization of surgical suites shifted the focus of practice from general medicine to surgery. Along

with the modernization came new diagnostic and therapeutic equipment. By 1965, the hospital industry was poised for the great expansion in patients and revenue that the passage of Medicare and Medicaid programs would bring.

#### CAPITAL GROWTH IN THE POST-MEDICARE YEARS

The period from 1966 to the present has been marked by fluctuations in capital spending. Following slow economic growth and reduced capital spending in 1966 and 1967, capital expenditures rose by 1969, peaking in 1976, then slowed due to high interest rates in the late 1970s. More recently, uncertainty about the impact of the Medicare prospective payment system has inhibited growth. Capital formation during this period was influenced by three factors: the establishment of the Federal health insurance programs, the increased availability of tax-exempt financing, and the emergence of multi-hospital systems.

Referring to Tables I-1 and I-2, hospital construction spending increased from \$2.1 billion in 1967 to \$7.5 billion in 1980. In constant 1972 dollars, however, spending during the period began and ended at nearly the same level, but was at its highest from 1969 to 1976.

As depicted in Tables I-3, 4, 5 and 6, the number of beds and admissions increased the most in investor-owned hospitals, increased moderately in voluntary hospitals and least in public hospitals. The actual number of investor-owned facilities declined during this period, which indicates that many of these hospitals merged with other investor-owned hospitals or changed ownership.

The pattern of high capital growth from 1969 to 1976 again is illustrated in Tables I-7 and I-8, which show annual increases in net plant assets of over 10 percent for each of these years. The value of assets of investor-owned facilities increased 44 percent between 1973 and 1974, and by almost one-third in both 1971 and 1972. Table I-9 shows the continued growth of insurance as a proportion of revenues during these years, primarily representing the advent of Medicare and Medicaid.

Medicare/Medicaid and Capital Formation. The impact of the Medicare and Medicaid programs on capital formation was not immediate. Tight money conditions and reduced growth in the general economy in 1966 and 1967 greatly reduced hospital capital spending. Thereafter, investment resurged as the impact of the Federal health insurance was felt. Between 1968 and 1971 the constant dollar value of medical facility construction increased at an average annual rate of 13.1 percent, a rate of increase not experienced since the establishment of the Hill-Burton program twenty years earlier.



Medicare policy regarding capital reimbursement was modeled after the cost-based principles of private health insurance, reimbursing hospitals for their incurred reasonable operating and capital costs. Medicare's capital payments consisted then and now of three components: depreciation, interest on borrowed capital, and return on equity for investor-owned hospitals. Other methods of reimbursing capital, including pooling mechanisms, were considered but rejected.

Cost-based reimbursement was considered a compromise to gain the full participation of the hospital industry in the new Federal program. In the first several years after enactment, the State Medicaid programs also followed the Medicare principles of capital and operating cost reimbursement. In the early to mid-seventies, a few States began to modify their hospital rate-setting methodologies under Medicaid. This trend accelerated dramatically in the late 1970s and early 1980s due to increased statutory and administrative flexibility that permitted States more latitude in reimbursement under Medicaid.

Reminiscent of the expansion of private insurance two decades earlier, the increased demand and revenues resulting from Medicare and Medicaid provided the basis for a rapid expansion of hospital capacity and modernization of equipment and plant. In one year from 1966 to 1967, Federal payments to hospitals almost doubled, from \$3.5 billion to \$6.3 billion. In the five years following establishment of Medicare and Medicaid, public payments to hospitals increased at an average annual rate of 13.2 percent. Private insurance also continued to grow during this period. Both added stability to hospital revenues, made loans to hospitals a lower risk, and opened the door for the capital expansion of investor-owned hospitals.

The enactment of Federal health insurance programs greatly accelerated the shift to debt financing begun in the 1950s with growth in private insurance. The proportion of construction funds supplied by debt for short-term general hospitals increased from 35 percent in 1969 to 57.3 percent in 1973. Such a large increase in capital spending could not have been achieved without a substantial increase in the use of debt financing. Cash flow alone was not sufficient to allow this magnitude of investment to be funded by internal equity.

Growth in Tax-Exempt Financing. In addition to the Medicare and Medicaid programs, other factors played important roles in hospitals' increasing reliance on debt financing. Hospital access to debt financing for capital expenditures improved with the establishment of a mortgage loan insurance program for voluntary and investor-owned hospitals in 1968 under Section 242 of the Federal Housing Act. This program guaranteed loan repayment to lenders in the event of default by the borrowers. The Hill-Burton Act was amended in 1970 to guarantee loans to

voluntary and publicly owned hospitals. This was accompanied by a large decrease in grants, from \$284 million in 1970 to \$167 million in 1973, adding to hospitals' increased reliance on debt financing.

Without doubt the most important vehicle for launching hospitals into the credit market was the tax-exempt hospital revenue bond. Tax-exempt bonds had been legally available to hospitals since 1963, but only under the condition that the ownership title of the facility be passed to the local municipality on retirement of the bond. For this reason, few hospitals had taken advantage of this debt-financing instrument. During the 1970s hospitals and their investment bankers, concerned about difficulty in raising capital, pressed for creation of State and local government authorities that would issue tax-exempt bonds without requiring hospitals to forfeit ownership.

The creative solution that emerged provided the finance authority with temporary title to the facility during the life of the bond issue, but leased it back to the hospital board for a nominal rent. Upon a bond's retirement, the ownership title was returned to the hospital board. This arrangement made debt capital more attractive and accessible to hospitals. A more extensive discussion of tax exempt financing is found in Chapter III, under the section entitled Federal Tax Policies.

Between 1971 and 1977 tax-exempt financing in the hospital industry increased at an average annual rate of 52 percent, adjusted for inflation. For the first time many hospitals had access to tax-exempt bond buyers. In contrast to taxable bonds, tax-exempt bonds carry few restrictions on their value or the frequency of issuance. Tax-exempt bonds have longer lifespans (up to 35 years) and lower interest rates than taxable bonds and commercial loans. At any given interest rate, the after-tax return for an investor in a tax-exempt bond is higher than that of a taxable bond.

Bond issues also may be structured to take advantage of the hospital's particular mix of payers. For example, the repayment schedule may defer principal payments until the end of the bond tenure. Thus, hospitals with a preponderance of third-party cost-based payers can earn substantial investment income from the depreciation payments of these payers without having to use the funds for debt service.

Tax-exempt financing permitted debt to be secured with a pledge of revenue as opposed to collateral, decreasing lender reluctance due to the absence of a secondary market for hospital plant and equipment. Tax-exempt financing linked hospitals to a market with investors who were less risk averse than commercial banks. The usual equity contribution demanded of borrowers

decreased from 50 percent for commercial loans in the 1960s to 10 or 20 percent for public bonds in the late 1970s. Once FHA Section 242 mortgage insurance became available to bond issuers, it was possible to debt finance the full cost of capital projects.

It is important to note that debt financing trends have varied by hospital sector. Voluntary hospitals have exhibited the greatest dependency on the tax-exempt revenue bond. According to the AHA Hospital Construction Survey, the share of voluntary hospital construction funds met by tax-exempt bonds increased from 16.4 percent in 1973 to 56 percent in 1981. When taxable debt is included, nearly 80 percent of voluntary hospital construction funds were supplied by the credit markets in 1981. Public hospital dependence on debt has increased markedly since 1969, but is still less than that of voluntary hospitals. Investor-owned hospitals have very limited access to tax-exempt bonds and rely almost exclusively on taxable instruments in the credit markets. These liabilities are offset by other advantages such as tax credits. A more detailed discussion of this issue appears in Chapter III.

Growth in Multi-hospital Systems. Debt financing provided both an incentive and the means for mergers and the growth of multi-hospital chains. According to American Health Capital, Inc., about 9 percent of hospitals belonged to multi-hospital chains in 1969. From 1969 to 1981 the percentage of hospitals belonging to chains increased 33 percent. The four largest hospital management companies, Hospital Corporation of America, Humana, American Medical International and National Medical Enterprises own 383 hospitals with 61,000 beds in the U.S., representing approximately two-thirds of all investor-owned chain hospitals and three quarters of available beds in investor-owned hospitals.

The growing dependence on debt capital created an incentive for hospitals to pool revenues in order to gain access to the credit market at lower interest rates than they could have obtained as independently operated facilities. Multi-hospital chains offer increased ability to accumulate, transfer and attract new equity capital. Shares in the five largest hospital management companies are traded on the national stock exchange; hence, these for-profit companies have access to an enormous pool of investors. In addition, if the chain is for-profit, it is also able to reap tax benefits by acquiring hospitals with net operating loss carry-overs, and by availing themselves of tax provisions such as accelerated depreciation and investment tax credits. (See Chapter III). The taxes that would otherwise have to be paid are deferred indefinitely, so long as the business continues to grow. Multi-hospital systems have greater access to the capital markets because they have a large base of operations over which to spread debt service costs. Their geographical



dispersion allows them greater flexibility in responding to environmental changes, such as those resulting from changes in the reimbursement system and the regulatory activities of government. Finally, the corporate structure of multi-hospital systems allows them some advantages in the recruitment of physicians and high quality managers.

Although the incentives for hospitals to join multi-hospital chains apply equally to not-for-profit and investor-owned hospitals, the movement toward multi-hospital chains has been most prominent in the investor-owned sector. Investor-owned hospitals in multi-hospital chains increased from 396 in 1976 to 589 in 1981, a 48 percent increase. Among not-for-profit hospitals, fewer than one in five belong to a chain and of these, nearly two-thirds are church-affiliated hospitals. Of the remaining non-profit hospitals in multi-hospital systems a proportion belong to State or local government hospital groups such as the New York City Health and Hospitals Corporation.

#### FUTURE CAPITAL REQUIREMENTS

From the mid-1970s to 1980, hospital capital investment declined in real terms. One view is that this decrease reflects a capital shortage in the hospital industry, brought about by inadequate reimbursement from government payers. Some argue that a continued decline will precipitate a capital crisis in the industry as hospitals built with Hill-Burton funds in the 1950s and 1960s come due for replacement in the 1980s. Others attribute this decline to Certificate of Need reviews and high interest rates.

When national expenditures for medical facility construction are examined in constant-dollar terms over the last 20 years, however, the decline in capital spending during the 1970s is not as noteworthy. The high capital spending levels of 1971 and 1972 were unprecedented in historical terms. Capital spending followed the establishment of Federal health insurance which spurred a dramatic increase both in the demand for hospital services and in revenue flowing to hospitals. The rapid expansion resulting from this influx of revenue has leveled off. It is possible that capital spending is now reverting to the levels required for the progressive replacement and modernization of existing assets. That is, the level of capital spending exhibited in recent years may be closer to the "normal" level of investment than that of a decade ago.

Even if one accepts the argument that the facilities put in place during the high spending years of the 1950s and 1960s will need to be replaced in the 1980s, current spending levels are likely to be adequate. Total medical facility construction in the 1950s was equal to \$34 billion in 1983 dollars. Using the composite construction cost index of the Commerce Department, the comparative figure for the 1960s was \$64 billion in 1983

dollars. This amounts to a maximum replacement cost base of \$98 billion which is only slightly more than \$91.2 billion (1983 dollars) spent on construction during the 1970s. It is likely that some of the investment made in earlier decades was replaced or substantially renovated during the 1970s. It is unlikely that all remaining facilities will be replaced in the next decade. Estimates of future needs are discussed below.

Capital Requirement Estimates. Recent literature on hospital capital requirements, including several detailed projections, show estimates ranging from \$80 to \$193 billion for the decade 1981-1990. The large variation in the projections is attributable to differences in the definitions of capital, methods of estimating requirements, and assumptions regarding construction costs and inflation rates. A comparison of the estimates and the underlying assumptions used is presented in Table I-10.

Since the estimates are based on different definitions, assumptions and methodologies, they are not strictly comparable. Some analysts examine renovation/replacement needs only, whereas others include other elements of total fixed asset investment requirements. Only Kidder, Peabody and ICF, Inc., examine working capital needs. Some analysts examine capital needs in constant dollars over the 1981-1990 period, while others examine the current value of all future replacement requirements.

Assumptions about the cost of renovating and replacing beds vary from \$75 to \$110 thousand per bed. Replacement and expansion assumptions range from \$125 to \$175 thousand per bed. Only Kidder, Peabody and Lightle and Plomann assume that the hospitals' existing long-term debt is repaid. Booz, Allen and Hamilton developed their estimates on the basis of the average number of hospital construction projects, rather than the number of beds requiring renovation. Finally, inflation assumptions vary greatly, ranging from 5 to 13 percent and in some cases including an annual factor for new technology of 2 percent.

To provide a consistent framework for evaluating hospital fixed asset requirements, and to test the sensitivity of the requirements to varying assumptions, the Department's Office of the Assistant Secretary for Planning and Evaluation developed a capital expenditure model and created series of estimates using different assumptions. The estimates are for community hospital capital requirements for fixed assets including land, plant and equipment over the 1986-1995 period. They do not include working capital requirements, the financing costs associated with major investments, replacement and expansion investments, or the repayment of principal on existing long term debt.

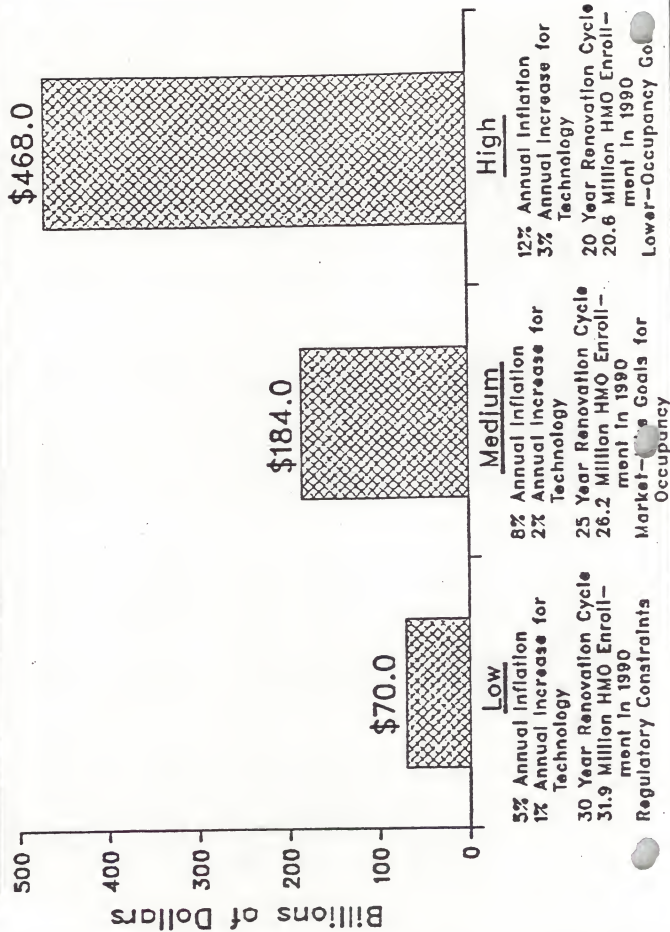
High, medium and low capital requirements for the period 1986-1995 estimated from the model amount to \$468, \$184, and \$70 billion (see Table I-11). The assumptions that were varied in

Table I-10

## ALTERNATIVE ESTIMATES OF COMMUNITY HOSPITAL CAPITAL REQUIREMENTS

Period of Forecast Scope	Kiddler, Parody (1981)	ICP (1981)	ICP (1982)	Bradford, Cahill, Goldsmith (1982)	Lightle, Phelan (1981)	Booz, Allen (1978)	Kalling, Williams (1978)
Investment Estimates (\$ billions)							
• Project Costs							
- Renovation	\$130.2	\$ 87.2	\$101.4	\$150.4	\$122.0	\$31.9	\$25.3
- Expansion	--	36.5	34.8	--	--	--	--
- Modernization	--	6.3	26.4	--	--	--	--
Subtotal	\$130.2	\$130.0	\$162.6	\$150.4	\$122.0	\$31.9	\$25.3
• Working Capital	36.1						
• Debt Repayment	19.2						
Total	\$192.5						
Range of Alternative Investment Estimates (\$ billions)	\$150-193	\$95-150	\$140-147	\$135	\$101-145	\$22-40	--
Sources of Capital							
• Philanthropy/Grants	41	116	--	--	--	36	128
• Internal Funds	406	104 (nat)	--	20.6	3.4	26 (nat)	78 (net)
• Long Term Debt	563	718	--	--	--	--	818
Total	1006	1001	--	20.6	3.4	1008	1008
Key Assumptions							
Renovation/Replacement Beds (000)	539	600	600	988	984	250-315	200-250
Cost Per Bed (\$000)	\$110/175	\$75	\$80/1132	\$152	\$80-125	(1247 projects) \$100-125 (\$25.6 million per project)	\$100-125
Expansion Beds (000)	--	150	150	--	--	--	--
Cost Per Bed (\$000)	--	\$150	\$132	--	--	--	--
Average Inflation Rate	13%	10%	12%	--	--	10%	5-6%

# HOSPITAL CAPITAL REQUIREMENTS 1986-1995 UNDER VARIOUS ASSUMPTIONS



the model to generate each level included (1) demand for hospital services (population change and HMO enrollment), (2) renovation standards, (3) construction costs, (4) planning controls, (5) inflation rates, and (6) new technology. The projections were found to be most sensitive to the assumptions about the inflation rate and the length of the renovation cycle.

The middle case estimate of \$184 billion assumes an inflation rate of 8 percent annually and a 25 year renovation cycle. If the assumed inflation rate is increased to 12 percent and all other variables are held constant, projected total investment increases 27 percent to \$234 billion. Similarly, lowering the inflation rate to 5 percent reduces projected investment to \$154 billion, or 84 percent of the middle case estimate. Subtracting 5 years from the assumed renovation cycle increases projected capital needs by 15 percent, while adding 5 years reduces capital needs by 10 percent.

Actual capital spending levels will be a function of several interrelated factors including: (1) the hospital's perceived need for investment versus its financial and other resources available to support that investment, (2) the consumer's demand for hospital services and facilities versus demand for the services of other health providers, (3) the investor's choice of hospitals versus other investment opportunities, and (4) the level of payments to hospitals that third parties can afford to make versus the premiums and taxes they can raise. The Department believes that the middle projection best represents future capital requirements since it represents the most likely scenario in terms of assumptions regarding inflation and renovation cycles.

## CHAPTER II

### MEDICARE CAPITAL REIMBURSEMENT: CURRENT PRACTICES AND PROBLEMS

This chapter discusses current Medicare capital reimbursement policies and their relationship to hospital investment. The first section describes Medicare payment principles in terms of capital sources and uses. The second section presents information on the magnitude and distribution of Medicare capital payments. The third section discusses problems associated with the current method of reimbursement for capital and the effect that the prospective payment system (PPS) is having on hospital capital investment.

#### MEDICARE CAPITAL PAYMENT POLICIES

Before the enactment of the prospective payment system, hospitals were reimbursed on the basis of the "reasonable cost" of furnishing all covered services. Under current rules defining what were allowable costs (commonly referred to as the principles of reimbursement), reasonable costs were defined as those costs incurred by providers that were determined to be necessary and proper to the provision of patient care. Within this definition of reasonable cost, the Medicare principles of reimbursement further differentiated allowable cost to distinguish between direct and indirect costs incurred by institutional providers in furnishing care to Medicare beneficiaries.

Direct costs were defined as room, board and nursing care that could be directly attributed to patient care. In contrast, indirect costs were considered as costs not directly attributable to patient care, but which were nonetheless incurred and necessary to the operation of a provider's facility. It was within this category of indirect cost that capital was included along with medical education.

The current prospective payment system applies to all operating costs except medical education and capital. The Congress did not include capital and medical education costs in the basic DRG rates, but instead asked HHS to study and plan for their inclusion.

Medicare payment for capital has changed little since the inception of the program. The original Medicare reimbursement regulations, published in 1966, included payment for depreciation on physical plant, buildings and equipment, and for interest expense on capital indebtedness. Later, these rules were revised to permit payment of a return on equity capital to investor-owned institutions in recognition of the need to compensate owners for their invested financial resources.



For purposes of this discussion, it is useful to distinguish among various definitions of capital. Economists have typically identified two aspects of capital -- "uses" and "sources." Uses of capital have traditionally included depreciation of fixed assets that constitute physical or real capital, and working capital, i.e., the money on hand required by hospitals to meet periodic, short-term obligations such as payments to suppliers or employee payroll. Sources of financial capital have included taxable and tax-exempt debt, philanthropy, payer revenues (including Medicare, Medicaid, private insurance and other payer revenue), and owners' equity for investor-owned hospitals. Certain "service" expenses associated with sources of capital include interest and principal payments on debt, rental and lease expense, fund-raising costs and dividend payments. Under the reasonable cost principles, Medicare has paid for a mixture of uses (depreciation) and service expenses associated with sources (interest and return on equity). The major components of Medicare capital payments are discussed below.

Depreciation. Historically, the largest portion of capital costs reimbursed by Medicare has been depreciation on provider capital assets. Depreciation is a universally accepted accounting convention to account for the consumption of a capital asset during the period of its expected useful life and to anticipate expenses for its maintenance. The Medicare program has adopted this convention for use in calculating depreciation by defining it as an accounting debt.

Under the principles of reimbursement, depreciable assets include buildings and equipment in which the provider has an economic interest through ownership, that are required in the regular course of patient care, and that are used for Medicare beneficiaries, and meet standard guidelines for capitalization. Any asset used for patient care regardless of source of funding can be depreciated for Medicare purposes, even if already depreciated for other purposes. Medicare reimburses depreciation on donated assets and on assets financed with Hill-Burton and other public funds.

The valuation of an asset is usually its historical acquisition cost. Prior to 1984, when an asset was sold, it was revalued and its sale price became the new basis for Medicare depreciation payments, not to exceed the asset's replacement cost (minus accumulated depreciation) or the fair market value at the time of purchase. After passage of the Deficit Reduction Act of 1984 on July 18 of that year, the value of an asset for Medicare depreciation purposes after a change of ownership "shall be the lesser of the allowable acquisition cost of such asset to the owner of record as of the date of enactment of this subparagraph (or, in the case of an asset not in existence as of such date, the first owner of record of the asset after such date), or the acquisition cost of such asset to the new owner (Section 1861 (v)(1)(O)(i)). Thus in most cases, an asset may not be revalued upon sale or acquisition. That is, the prior acquisition cost



must continue to be used. The useful life of an asset is the period of time over which the asset can be depreciated. For Medicare purposes, this period is determined by schedules authorized by the Secretary after accounting for such factors as wear and tear, obsolescence and the provider's "replacement policies." Medicare does permit changes in the useful life if they are justified by the provider and approved by the fiscal intermediary.

Medicare generally calculates depreciation using the straight-line method. Accelerated methods of depreciation may not be used for assets acquired after July 31, 1970, except where the cash flow from straight-line depreciation is insufficient to meet reasonable principal amortization schedules. In this case the declining balance method, not to exceed 150 percent of the straight-line method, may be used. Depreciation expense must be adjusted by gains or losses realized from the disposal of depreciable assets, as well as by the recovery of accelerated depreciation, as necessary.

A provider may include in its capital-related costs the cost of insurance for depreciable assets used for patient care, or insurance that provides for the payment of capital-related costs during business interruption. Taxes on land and depreciable assets used for patient care are accepted capital-related costs. Rents and leases are also accepted elements.

Interest Expense. A second component of capital costs recognized by Medicare is interest on capital-related debt. Medicare regulations define allowable interest as the "cost incurred for the use of borrowed funds." The program reimburses interest expense on capital-related debt, which includes interest expense incurred in acquiring land and/or depreciable assets used for patient care and interest expense incurred in refinancing existing debt, if the original purpose of the refinanced debt was to acquire land and/or depreciable assets used for patient care. However, for reimbursement purposes, the provider must have a loan agreement or similar instrument and a "proper and identifiable" record of its interest expense.

Under the principles of reimbursement, Medicare may make certain determinations concerning whether a specific interest expense is "necessary" and "proper." For example, a loan obligation must be incurred for purposes related to patient care. Interest expense may not be reimbursed if a provider had available funds that could have been used to finance the capital expenditure or if a loan exceeds the amount necessary.

Medicare regulations further provide that all investment income must be offset against allowable interest expense except when such income is from gifts (whether restricted or unrestricted), grants and endowments, a provider's qualified pension fund, or funded depreciation. This last exception was intended to encourage providers to set aside depreciation payments so that

they can be used for replacement of assets and other future capital investment. This provision is an acknowledgement that gifts, grants and income from endowments are important sources of capital for non-proprietary providers. Public Health Service and other government or public grants are treated similarly. "Proper" is further defined to mean that the rate of interest incurred on a debt must be commensurate with what a prudent borrower would pay in the market at the time the loan was made. The lender may not be related through control or ownership or other personal relationship to the provider. The loan must be acquired under an "arms-length" transaction. A close relationship between the parties is deemed to "affect the bargaining process" and "could thus be suggestive of an agreement on higher rates of interest or unnecessary loans."

Return on Equity. The third component of reimbursable capital cost is return on equity (ROE) capital for investor-owned hospitals. Equity capital includes plant, buildings, and equipment (net of depreciation) used for patient care, certain funds required in the lease of assets and net working capital related to patient care activities. Funded depreciation, representing accumulated depreciation on assets, is not included in equity capital. Also, loans from investors are treated as investments and included in equity capital. Certain items receive special treatment in equity capital reimbursement. For example, loans incurred by the parent corporation of a hospital chain can only be reflected in the equity capital of subsidiary corporations and then only if they relate directly to costs incurred by the subsidiary.

The first step in computing a return on equity is ascertaining the "base" or the provider's net equity (assets minus liabilities). Average investment is computed on a monthly basis and is determined by adjusting the amount or balance of equity capital at the beginning of each month for the changes in equity capital resulting from certain transactions such as sale of assets or new capital investment. The average amount in the monthly balances is then computed to arrive at the total amount of equity capital for the provider's cost reporting period. The monthly figures are then totaled and the average monthly return calculated for the year.

ROE has been the subject of continual debate and litigation. The 1965 Medicare statute did not provide for a return on equity payment. The then Department of Health, Education and Welfare established in 1966, through regulations, a 2 percent allowance for all hospitals, based on allowable operating expenses excluding interest expense and certain other factors. This allowance was intended to cover expenses incurred, but not readily identifiable due to problems in cost-finding methods during the implementation of the Medicare program. One of the examples of a difficult-to-define cost was ROE.

In 1966, the Congress amended the Social Security Act (P.L. 99-713) to allow ROE, but only to proprietary nursing homes. This provision was enacted in response to a perceived shortage of nursing facilities. By statute the maximum rate of return was set at 150 percent of the average annual interest paid on obligations issued by the Medicare Trust Fund.

The only reference to proprietary or investor-owned hospitals was in the Conference report accompanying P.L. 89-713, directing the Secretary to "apply similar or comparable principles in determining [ROE] for proprietary hospitals." Based on the Conference Report, the Department used its regulatory authority to apply the statutory formula for proprietary nursing homes to proprietary hospitals. As a result, there were actually two payments made which related to ROE, an explicit payment limited to investor-owned hospitals and nursing homes, and an implicit payment for all hospitals that included ROE as one of its major purposes. Although there was strong Congressional objection to the 2 percent allowance, especially as an implicit ROE payment, it was not until 1969, after three years of intense debate, that HEW revoked the 2 percent allowance, while retaining ROE for proprietary providers.

Since these early policy decisions, ROE has been the subject of considerable controversy and litigation. Nonprofit hospitals have sought extension of ROE payments to all hospitals, challenging the constitutionality of unequal treatment. Most recently, in 1982, the U.S. District Court for the Southern District of Indiana held in Indiana Hospital Association v. Schweiker that the equal protection clause of the Fifth Amendment did not pertain in the case as presented. The court found that the distinction between proprietary and nonproprietary providers was rationally based and therefore legal. The courts have supported consistently the limited application of ROE payments, referencing extensively the legislative debates documented in early Senate Finance Committee hearing transcripts. For example in Hospital Authority of Floyd County, Georgia v. Heckler, the Eleventh Circuit Court of Appeals stated:

"The Senate Committee, in short, was being told by the Commissioner [of Social Security] that no return on equity was allowed explicitly.. but that a return on equity capital was discretely included in the 2 percent allowance. Having traced the footprints on the trails of legislative enactment, the court concludes that it was not the intent of Congress to provide for a return on equity capital to all facilities."

Similarly in St. Francis Hospital Center v. Heckler, the Seventh Circuit Court of Appeals concluded that:

"The legislative enactments at issue here are not a model of clarity. However, they do not alter our conclusion the

Congress did not intend a return on equity capital for nonproprietary providers..."

Investor-owned hospitals also have challenged application of the Medicare Trust Fund formula on both procedural and substantive grounds. For example, in AMI vs Heckler, a major investor-owned chain has argued that the statutory formula applies only to proprietary skilled nursing homes and should not be applied to investor-owned hospitals. They maintained that the maximum rate does not provide for a "reasonable" rate of return for equity capital as would be consistent with a cost-based hospital reimbursement system. In all such cases, the courts have supported the DHHS position and have stipulated that ROE was never intended by Congress to be a "generic" cost under the reasonable cost definition applicable to all Medicare's cost-based reimbursement.

In 1978, the Congress extended ROE payment to end-stage renal disease providers (P.L. 95-292). In doing so they reaffirmed the limited statutory application of ROE and introduced a more discretionary element in setting ROE rates:

"Such regulations in the case of services furnished by proprietary providers and facilities may include, if the Secretary finds it feasible and appropriate, provision for recognition of a reasonable rate of return on equity capital, providing such rate of return does not exceed the rate of return stipulated in section 1861 v (1) (B)." (emphasis added)

Finally, in 1983, P.L. 98-21, which established the prospective payment system, gave the Secretary broad, discretionary authority to assess the merits of continuing current ROE policy. The rate was lowered from 150 percent to 100 percent of the average annual interest paid on obligations issued by the Medicare Trust Fund for ROE payments to hospitals. The rate for skilled nursing facilities remains at 150 percent. Congress expected that any proposed Medicare capital payment legislation would address treatment of return on equity de novo -- unimpeded by restrictive legislative or judicial decisions.

#### MAGNITUDE AND DISTRIBUTION OF MEDICARE PAYMENTS FOR CAPITAL

Capital expenditures in 1981 represented approximately 7.39 percent of Medicare payments for inpatient hospital costs. In 1984, the first year under the prospective payment system, Medicare inpatient operating expenditures for covered hospitals were expected to total \$36.0 billion. Inpatient capital expenditures are expected to total \$2.9 billion for depreciation and interest and \$200 million for return on equity.

Based on current economic inflation assumptions, it is anticipated that by 1990 inpatient capital expenditures will amount to an estimated \$5.2 billion for depreciation and interest

and \$300 million for return on equity. The cumulative 1981-1990 Medicare payments for capital are expected to total \$38 billion of the total estimated \$100 billion projected to be the capital requirement over the decade.

As Table II-1 illustrates, of the 7.39 percent of Medicare's payments for inpatient costs that went for capital, 2.75 percent was for depreciation on fixed assets, and 1.79 percent for depreciation on movable assets. About 2.35 percent was for interest and about .5 percent was for return on equity. When interest is attributed to each type of asset, 57 percent of Medicare's inpatient capital payment is for buildings and plant and 36 percent is for movable equipment.

National figures conceal considerable variation among hospitals. Based on 1981 figures, prior to the implementation of the prospective payment system, an analysis examined this ratio in relation to the national mean for Medicare capital payments to hospitals of 6.89 percent for depreciation and interest. For roughly one quarter of the hospitals, depreciation and interest were less than 4 percent of total inpatient costs. Slightly over one-half of the hospitals claimed depreciation and interest of between 4 and 10 percent of inpatient costs. Just under one-fifth had ratios between 10 and 20 percent, and about 1.5 percent of the hospitals had ratios over 20 percent.

When hospitals were grouped by various characteristics certain types tended to have higher capital-to-operating cost ratios than others. Table II-2 illustrates that hospital characteristics associated with lower ratios of capital to operating costs included a proportion of Medicaid patients greater than 15 percent, government ownership, membership in the Council Of Teaching Hospitals, and a New England location. For each of these classes, capital costs (excluding return on equity) averaged less than 6 percent of operating costs, compared with the national mean of 6.89 percent.

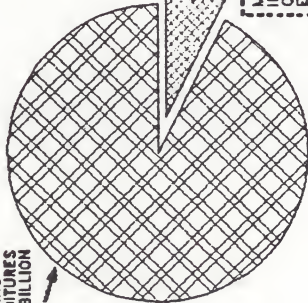
Hospital characteristics associated with higher capital expenditures included for-profit ownership, bed changes of more than 10 percent in the last 5 years, and presence of a management contract. For the first two of these classes, capital costs averaged over 9 percent of inpatient costs, while for the latter they averaged about 8 percent.



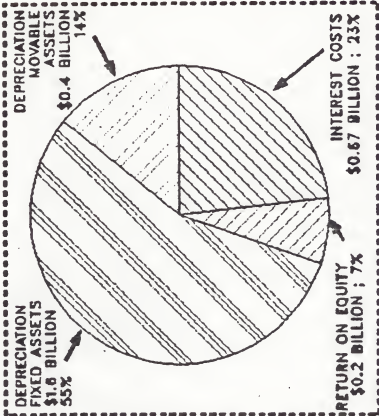
TABLE II-1

# RELATIONSHIP BETWEEN MEDICARE CAPITAL AND OPERATING EXPENDITURES

MEDICARE  
INPATIENT  
OPERATING  
EXPENDITURES  
\$38.0 BILLION  
92.6%



MEDICARE  
INPATIENT  
CAPITAL  
EXPENDITURES  
\$2.9 BILLION  
7.4%



DEPRECIATION  
FIXED ASSETS  
\$1.6 BILLION  
55%

DEPRECIATION  
MOVABLE  
ASSETS  
\$0.4 BILLION  
14%

INTEREST COSTS  
\$0.67 BILLION : 23%

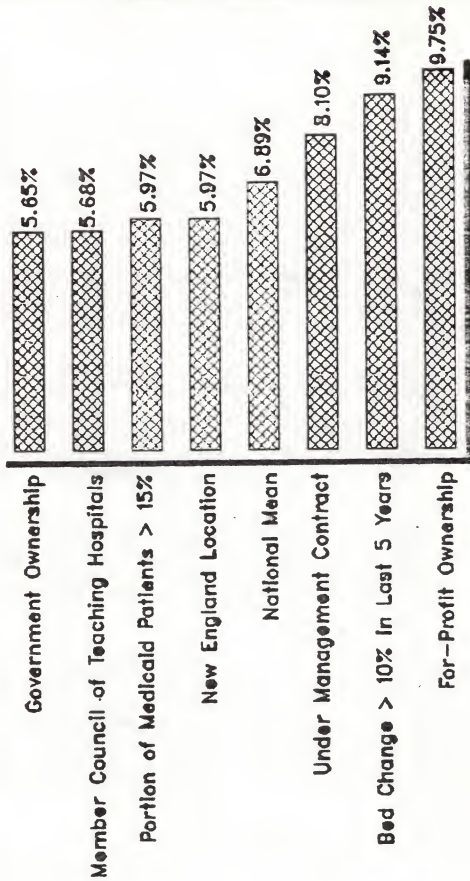
RETURN ON EQUITY  
\$0.2 BILLION : 7%

TOTAL = \$38.9 BILLION

TOTAL = \$2.9 BILLION

TABLE 11-2

# HOSPITAL CHARACTERISTICS ASSOCIATED WITH LOWER AND HIGHER RATIOS OF CAPITAL TO OPERATING COSTS



(Excludes Return on Equity)



The hospital characteristic with the strongest effect on capital expenditures is the age of the hospital's assets. As expected, new assets are the most expensive. Hospitals with capital costs of less than 3 percent of total inpatient costs had an average composite asset age of about 16.5 years. Where capital costs were more than 10 percent of total inpatient costs, the average composite asset age was 4 to 5 years. The national average asset age in 1981 was 8 years. These hospitals had a capital to operating ratio of 6.9% excluding return or equity payments.

Precise Medicare ROE expenditure statistics are not available. There are several estimates of these expenditures; however, these estimates are not completely consistent because of differences in the source and extent of the data bases of the three groups.

- o The Federation of American Hospitals (FAH) estimates ROE payments at \$245 million for 1982.
- o The HCFA Office of the Actuary estimates for ROE are: \$320 million for 1982; \$300 million for 1983 and \$200 million for 1984. The lower 1984 ROE estimate reflects the reduction to 100 percent of the interest rate on trust fund obligations.
- o The Office of the Assistant Secretary for Planning and Evaluation (OASPE) estimated ROE as part of the overall study to project the impact of various capital policies. The figures are \$129 million for 1982; \$183 million for 1983 and \$117 million for 1984. Again, the lower 1984 level reflects the reduction to the 100 percent rate.

For 1982, OASPE's \$129 million figure corresponds to 3.6 percent of investor-owned hospitals' Medicare revenue. Subsequent to the reduction in the ROE payment rate, the 1984 ROE payment decreases to 2.8 percent of Medicare revenue. If hospital-specific payment of ROE to investor-owned hospitals were to continue under current rules, OASPE projection indicates that the total amount would rise to \$648 million by 1995 (assuming no increase in the number of investor-owned hospitals). Projected increases in future ROE payments would range from a high of 23 percent for 1984-1985 to 12 percent for 1994-1995.

#### ISSUES RAISED BY THE CURRENT SYSTEM

The current cost-based system encourages increased investment without a test of efficiency. It provides a strong incentive for debt financing, and may result in distributional inequities.

Incentives to Invest. Chapter I briefly addressed the ways in which cost-based reimbursement has made increased investment possible. The mechanism for this is the payment of depreciation on all assets, whether or not they are debt-financed. This

arrangement has provided hospitals with funds greater than the amount required to pay debt principal. In fact, the excess of depreciation over debt principal payment probably represents about one-third of Medicare's total payments for capital.

The rationale for paying for depreciation in excess of debt principal payments was clearly designed to allow hospitals to accumulate funds for new investment. However, the method assured that accumulation of equity was directly related to the value of existing assets. Consequently, hospitals were motivated to acquire newer and more valuable assets to enhance their equity position. In a paper commissioned for the Department, Capital Payment Policies In Other Industries, Frank Sloan states that when the cost of capital to an organization is less than the rate of return allowed by regulators, the organization will acquire excessive plant and equipment relative to other inputs. This distortion in the management decision process in favor of capital spending is described in the literature of public utility economics as the "Averch-Johnson" effect. The capital cost "pass through" under Medicare is an analogous situation.

For hospitals, unlike public utilities, the financial incentives of the capital payment mechanism are exacerbated by non-financial factors. In the hospital environment, one of the most important factors impinging on capital investment decisions is the need to attract and retain physicians. Since physicians also control the use of their product and demand the latest available technology, they often exert undue influence on management decisions regarding capital investment. Other non-financial factors include prestige, patient and staff comfort, and the marketing advantage that a new physical plant and certain types of equipment may offer.

Finally, and perhaps most importantly, with the guarantee of cost reimbursement for patient care expenses, there was no real test nor necessity to determine the relative efficiency of a particular investment. By reimbursing hospitals for incurred operating costs, there was no discrete incentive for hospitals to strive for efficiency in their capital investments or in the delivery of services to Medicare beneficiaries. Virtually all increases in operating costs were automatically covered by increases in revenues. In effect, the Medicare market was price insensitive. Efforts by hospital managers to hold down operating costs simply led to concomitant reductions in Medicare revenues. Thus, in this cost-based environment, an investment that reduced costs became less valuable than an investment that increased them because cost-increasing investments augmented revenues without directly affecting net income.

These investments might enable a hospital to attract or retain physicians and patients and or even improve the quality of care, since each of these outcomes enhances the prestige of the hospital. Consequently, the risk of money-losing investments is reduced or eliminated, and cost-increasing investments may

actually be rewarded. There is not agreement on the precise effect of capital investment on operating costs, but one of the more widely cited estimates was prepared by Arthur D. Little, Inc. They estimated that, on average, a dollar in capital investment results in increased annual total hospital expenditures amounting to 22 cents.

Incentives to Debt Finance. Chapter I of this report mentioned the ways in which cost-based reimbursement increased debt financing. Debt financing is attractive because a hospital does not incur additional costs for debt-financed projects since interest expense is reimbursed on a cost basis. Hospitals also may be more attractive to lenders because cost-based payment for depreciation helps them raise equity for down payments and because cost-based payment for operating costs helps ensure capacity to repay principal. Finally, debt financing enables the hospital to retain its equity reserve and thereby improve its credit position. In contrast, hospitals using equity to finance capital projects are not reimbursed for the opportunity cost of using that equity, unless they are investor-owned facilities receiving return on equity as well.

Combined Effects. The combined effects of incentives to choose capital over labor and debt over equity financing are discussed by Harold Cohen, Executive Director of the Maryland Hospital Cost Review Commission in his analysis for the Department entitled Approaches to Setting The Level of Payment for Hospital Capital Costs Under a Prospective Payment System. While his analysis assumes cost-based reimbursement for operating and capital costs, its implications have broader relevance. In his analysis, he describes a hypothetical situation in which, over 10 years, a hospital has the choice of using labor, investing equity, or debt financing in order to produce \$1 million worth of services. (See Table II-3.) The present value of the amount the hospital will be paid via cost-based reimbursement is actually \$1 million if it relies on labor. This is because a cost-based system automatically adjusts for inflation on the operating side. (Under prospective payment, the value to the hospital of labor would need to be assessed relative to the DRG payments). If the hospital relies on equity, the present value it will receive is only \$676,000, because Medicare does not recognize the opportunity cost of foregone earnings on equity. If the hospital relies on debt, however, it will receive \$1.1 million, because Medicare pays interest each year on the outstanding balance. Thus, Cohen concludes, a hospital will choose debt financing first, use of labor second, and equity third. He points out that the combined incentives encourage hospitals to borrow, to borrow with the lowest possible equity, to borrow even when interest rates are high, and to use debt structures which maximize cash flow differences between principal and depreciation payments.

TABLE II-3

HYPOTHETICAL MEDICARE PAYMENTS FOR  
LABOR OR CAPITAL

<u>LABOR</u>		<u>CAPITAL</u>	
		<u>100% EQUITY</u>	<u>100% DEBT</u>
<u>Year</u>			
1	\$ 100,000	\$ 100,000	\$ 200,000
2	110,000	100,000	190,000
3	121,000	100,000	180,000
4	133,100	100,000	170,000
5	146,410	100,000	160,000
6	161,051	100,000	150,000
7	177,156	100,000	140,000
8	194,872	100,000	130,000
9	214,359	100,000	120,000
10	235,795	100,000	110,000
TOTAL	\$1,493,743	\$1,000,000	\$1,550,000
PRESENT VALUE		\$ 675,000	\$1,000,000

SOURCE: Harold A. Cohen and Jack C. Kean Approaches to Setting the Level of Payment, Hospital Capital Finance Paper, 1984.

Distributional Implications. Because accumulation of equity is directly related to the value of existing assets under cost-based reimbursement for capital, hospitals with newer, more expensive plants and equipment are at an advantage. Those with less valuable assets are less able to accumulate equity and thus are less able to attract investors. Over time, their position vis-a-vis other hospitals inevitably declines. There is reason to be concerned about such hospitals' increasing inability to upgrade themselves, especially where undercapitalization has resulted from diversion of capital payments to subsidize operating losses such as bad debts and charity care for indigent persons.

Differential Treatment of Hospitals by Ownership. The return on equity that Medicare pays investor-owned hospitals is another important issue. The rationale for return on equity is to compensate for the economic costs of acquiring equity capital. The distinction between investor-owned and non-profit hospitals was originally based on the non-profits having access to philanthropy and government grants and from preferred access to debt financing through tax-exempt bonds.

More recently, payment of return on equity to investor-owned hospitals has been justified on the grounds that these hospitals pay taxes. On the other hand, non-profit hospitals argue that Medicare should recognize the economic costs of generating philanthropy and preserving an equity base to provide community services, e.g., free care and low volume specialty services. In addition, the non-profits point out correctly that funds available from philanthropy and government grants have been shrinking.

As the following trends show, the use of philanthropy and grants has declined, and not-for-profit hospitals are more extensive users of debt financing than are investor-owned hospitals.

- o Annual philanthropy for hospital construction declined from \$302 million in 1973 to \$168 million in 1981 (or \$88 million in 1973 dollars).
- o Government grants declined from \$635 million in 1973 to \$512 million in 1981 (or \$274 million in 1973 dollars).
- o Debt financing increased from \$1.7 billion in 1973 to \$3.0 billion in 1981 (or \$1.6 billion in 1973 dollars).

Under a cost-based reimbursement system, ROE payments compensate for the economic costs of acquiring "equity capital." These costs generally refer to the time value of investment funds -- specifically the opportunity costs and associated risks of such investments. For investor-owned hospitals the cost of equity capital is expressed as dividends and capital gains paid to



investors for the use of their money. A guaranteed return on equity substantially minimizes "risk" associated with such investments and increases the capacity of investor-owned hospitals to generate equity capital.

Under a prospective payment system, in contrast to a cost-based reimbursement system, the ability to generate profits is enhanced. Higher operating margins or profits resulting from more efficient performance under a prospective payment system could more than offset the value of ROE payments. Some argue that under a prospective payment system internally generated profits, as in other competitive industries, should cover dividends and capital gains accruing to investors. Only in highly regulated public utility industries is a return on equity guaranteed as a component of the regulated rate. In competitive industries a return on equity is self-generated and it is used as a measure of market performance.

The future comparative advantage of one type of ownership and tax status over the other is difficult to assess in concrete and unambiguous terms, especially in light of a rapidly changing health care market and increasing evidence of similarities in the management behavior, structural organization (e.g., multi-hospital systems) and debt financing patterns of investor-owned and non-profit hospitals.

Investor-owned hospitals, unlike the non-profit hospitals, are subject to taxation. Actual taxes paid by investor-owned hospitals are substantially lower than the corporate statistical rate of 46 percent of taxable income. In 1982, the four major investor-owned hospital chains reduced their tax liability by 6.4 percent (investment tax credits and other adjustments) and reduced their tax obligation by 18.2 percent of income in deferred taxes. Effective net tax rates are difficult to calculate given the complexity of the IRS tax code.

Capital-generating costs for investor-owned hospitals are marginally higher than for non-profit hospitals. Dividends, capital gains and interest are taxable to investors and higher returns are sought on taxable instruments in contrast to the tax-exempt bonds issued to finance capital investments of non-profit hospitals. The investor-owned hospitals thus argue that ROE offsets the advantage enjoyed by non-profit hospitals in their ability to generate philanthropy, government grants and tax-exempt bonds. However, recent reductions in personal income tax rates have reduced the advantage of tax-exempt instruments and the demand for higher offsetting rates for taxable instruments.

Non-profit hospitals, on the other hand, argue that economic costs of generating philanthropy and preserving an equity base to provide services to the community (e.g., free care, specialty and low volume services) should be recognized by a ROE payment. Bad debt and charity care, for example, are 33 to 83 percent higher

for non-profit hospitals (AHA statistics indicate 2.9 percent for proprietary hospitals and 5.3 percent for non-profit hospitals in comparison to 5.1 percent for the industry).

Non-profit hospitals are nonetheless in a reasonably good position to generate debt financing given their comparative debt-to-asset ratio for 1979-1982. For example, long term debt for the non-profit hospitals was 33 percent of assets in contrast to 46 percent for the investor-owned hospitals. All non-profit hospitals will enhance their capital generating capacity insofar as their operating margins increase significantly under all of the capital payments options, primarily as a result of the DRG prospective payment system. In contrast to a 4 percent operating margin under an all cost-based reimbursement system, we project that operating margins for non-profit hospitals will increase to 6-8 percent annually for 1986-1990 and to 9-11 percent annually for 1991-1995 under the DRG prospective payment system. Thus their ability to generate equity capital (internal reserves or profits) and debt financing is greatly enhanced by the prospective payment system.

A comparative advantage analysis is highly sensitive to effective tax rates and Medicare ROE rates. Between 1979 and 1981, investor-owned hospitals had substantially higher total revenue margins than non-profit hospitals. To the extent that investor-owned hospitals have had a net operating advantage over nonprofits in recent years as a result of ROE payments, the combined effect of reducing the ROE rate to 100 percent of the Trust Fund interest rate and lower projected interest rates would reduce the potential advantage of ROE in the foreseeable future.



## CHAPTER III

### THE ROLE OF OTHER FEDERAL POLICIES

In addition to provider reimbursement practices, numerous other Federal programs and policies affect hospital capital investment. This chapter describes four Federal policies that currently have a significant impact on investment behavior. The first section examines Federal tax policies, focusing on tax-exempt bonds and their impact on capital investment. The second section reviews the FHA Section 242 Mortgage Insurance program. The third examines review of capital investment under the State certificate of need (CON) programs mandated by the National Health Planning and Resource Development Act, while the fourth considers State agreements under Section 1122 of the Social Security Act. Section 1122 authorizes the withholding of Medicare and Medicaid reimbursement for capital costs (depreciation, interest, and return on equity) of a project that a designated State planning agency finds inconsistent with its own standards.

There are several reasons for considering these programs when deciding how to integrate capital costs into the prospective payment system (PPS). Continuation of existing tax policies, especially in the presence of a hospital specific capital payment, could result in revenue losses to the Federal government. Second, changes in Medicare reimbursement may result in a significant shift in capital payments among types of hospitals. Third, since the Medicare payment system is a limited tool for achieving objectives specific to certain types of hospitals, more targeted effects may be achieved through other programs, especially those that provide explicit subsidies. Fourth, it is important to examine the implications of Congress' requirement that a mandatory Section 1122 program be implemented should a plan to include capital into prospective payment fail to be devised prior to the start of FY 1987 (October 1, 1986).

#### FEDERAL TAX POLICIES

As was discussed in Chapter I, prior to the availability of tax-exempt bonds, commercial banks had been reluctant to lend to hospitals because of the absence of a secondary market for hospital plant and equipment. Tax-exempt financing permitted hospitals to secure debt financing with a pledge of revenue as opposed to collateral. It offered hospitals the advantage of longer terms and lower interest rates and provided lenders a disposable instrument. This assured hospitals much greater access to the credit market. In recent years, Federal tax policies have become even more important in hospital capital financing and, in some quarters, a focus of concern because of the growing deficit. Indeed, recent Treasury data have shown that 70 percent of tax-exempt financing for 501(c)(3) organizations is used to finance medical facility construction.

Tax-exempt financing largely benefits non-profit hospitals, although profit-making entities, including investor owned hospitals, do have access to Industrial Development Bonds (IDBs), another type of tax-exempt financing instrument. Only one investor-owned hospital group, Hospital Corporation of America, currently uses IDBs with any regularity.

Investor-owned hospitals can also benefit from the tax incentives generally available to profit-making entities, including a 10 percent investment tax credit on debt-financed construction or improvement, and faster depreciation via accelerated cost recovery. Investor-owned hospitals are allowed to compute depreciation on an accelerated basis for the purpose of reporting taxable income. The taxes that would otherwise have to be paid are deferred indefinitely, so long as the business continues to grow.

Non-profit hospitals, which fall under the rubric of tax code section 501 (c)(3), have been able to share in these benefits by creating for-profit subsidiaries (e.g., for parking lots, physician office buildings or support services) and then engaging in lease-back arrangements. In addition, non-profit hospitals may become a subsidiary of an enterprise that has no direct responsibility for delivering health care. The controlling organization may hold the title to the hospital's fixed assets or endowment and may control the disbursement of its proceeds or of philanthropic contributions. By creating a non-health delivery entity to control the hospital, new lines of health care or health management services can be spun off from the hospital under separate incorporations but kept under common supervision. These new lines of business, which may range from health related real estate and management services to home health care and occupational health services, can operate freely in price-sensitive markets without interfering with the hospital's reimbursement for conventional hospital services.

Current Policy. Under the Internal Revenue Code, interest from bonds issued by State or local governments on behalf of non-profit organizations is exempt from Federal income taxation. Tax-exempt interest rates range between 65 percent and 75 percent of taxable interest rates on long term obligations. Also, tax-exempt bonds have longer lifespans (up to 35 years) than commercial loans (10-15 years). It is not uncommon for the par value of a bond issue to supply virtually 100 percent of the project costs. Federal law does not restrict the dollar amount of tax-exempt revenue bonds which may be issued. Since tax-exempt financing can be accomplished prior to or during the construction period, the need to obtain interim financing can be eliminated. Tax-exempt financings are normally unrestricted so a hospital can easily obtain additional funds for subsequent construction programs. The period of repayment can closely parallel the depreciable life of the new facilities. Proceeds from the sale of bonds are usually deposited in a construction

fund held by the trustees, and are disbursed as construction costs are incurred and requisitions for payment are submitted by the hospital. During the construction period, bond proceeds may be invested by the trustees as directed by the hospital. Since interest on the bonds is tax-exempt, it is often possible for available funds to be invested in taxable obligations which normally provide a higher yield than the rate of interest on the bonds. These profits, which are referred to as arbitrage profits, can in certain circumstances be substantial. Expected arbitrage profits are sometimes projected in the financial feasibility study and are utilized to reduce the aggregate principal amount of bonds necessary to finance the construction project.

A total of 26 States have authorities or agencies which can issue tax-exempt revenue bonds for non-profit health care facilities and make it possible for hospitals to retain the ownership title of the facility on debt retirement by using a "leaseback" arrangement. Nearly all other States have some local issuing authorities within their jurisdiction.

An issue of growing importance in this regard is the loss of revenues to the U.S. Treasury caused by the growth in tax-exempt financing. Between 1968 and 1983 the proportion of non-profit hospital investment financed by debt of all kinds increased from 40 percent to 60 percent. In 1968, most of this debt was taxable, but by 1983, over 80 percent was tax-exempt. In a time of scarce Federal resources, the volume of private purpose tax-exempt bonds has continued to increase. Total new issues grew from \$55 billion in 1981 to \$90 billion in 1983. In that latter year, private purpose tax-exempt bonds accounted for \$50 billion of the \$90 billion.

The Treasury Department is concerned about the proliferation of these bonds due to their impact on Federal revenues. The proportion of these issues compared to those for State and municipal government purposes has risen from 20 percent to 54 percent since 1975. Treasury estimates that of the \$50 billion issued in 1983, \$10.9 billion was for non-profit hospital revenue bonds, a 62 percent increase over the 1982 figure.

Because of the drain on Federal revenues produced by these bonds, several proposals have been made in recent years to restrict their use. In 1982, the Administration proposed that tax-exempt bonds be subject to the approval of elected officials and that an issuer be required to make a financial contribution to the facility. An exemption from local or State taxes would have qualified as a contribution. Proposals to limit tax-exempt financing in this or other ways have met with strong opposition from hospital groups and the Council of Hospital Finance Authorities, which represents the State organizations. The approval provision was enacted by Congress, but not the contribution requirement for IDBs. In addition, IDBs were scheduled to be eliminated completely by 1987.

In 1983, the Treasury Department proposed legislation which would have imposed State volume limitations (caps) on private purpose tax-exempt issues -- all those not issued directly for State or local government use. The original plan included hospital bonds, which are considered indirect issues. Congress ultimately enacted the State caps on certain issues, but exempted public and private nonprofit hospitals. Had hospitals come under the caps, they would have had to compete with non-health projects such as housing, student loans, pollution control, and industrial development for funding.

The legislation also strengthened limitations on arbitrage bonds for non-profit and investor-owned hospitals. For investor-owned hospitals it limited the volume of obligations that could benefit any one user. The arbitrage change prevents hospitals from issuing more bonds than they can use. Hospitals should benefit from this legislation since reduced activity by other borrowers will lower financing costs overall.

Options. In addition to maintenance of current policy, several changes are possible for the Federal tax policies that affect hospital capital investment:

- o State caps for all private purposes. This option would attempt to curtail the use of all private purpose issues, including those for both investor-owned and non-profit hospitals, since they constitute a growing proportion of State and municipal government issues. It is similar to the proposal considered by the Treasury Department and mentioned in Congressional testimony by the Assistant Treasury Secretary for Tax Policy in 1983.
- o Require securing by property, not revenue. Under this option hospitals would be especially affected because of the lack of a secondary market for their facilities. If they were required to secure debt with collateral on their property rather than with revenue, their access to tax-exempt financing could all but disappear.
- o Eliminate all private purpose tax-exempt bonds. This has been suggested by the Grace Commission as a way of stopping the drain on the Treasury, but it is likely to have severe repercussions on many types of borrowers.

Discussion. Tax proposals (included in a package referred to as "Treasury II") being deliberated as of this writing would fully eliminate use of state and local government bonds for financing private, non-profit hospitals. This would force hospitals to compete with other interests for financing without eliminating their access to the tax-exempt bond market. This option would help increase tax revenues and could moderate investment. In



terms of hospital behavior, debt financing would be somewhat less attractive and hospitals would face more of a market-oriented investment situation. Finally, in terms of distributional impact, if return on equity payments were eliminated for investor-owned hospitals, limits on or elimination of tax-exempt financing could help even the scales between non-profit and investor-owned facilities.

#### FHA SECTION 242 MORTGAGE INSURANCE PROGRAM

Section 242 of the Federal Housing Act is the largest and most significant Federal subsidy for hospital capital investment. It insures the mortgages which finance hospital construction, modernization, and renovation projects for up to 90 percent of the replacement cost of the project. Private non-profit and investor-owned hospitals have been eligible since the program's inception; public hospitals were added in 1983.

The program was created in 1968 under the auspices of the Department of Housing and Urban Development (HUD). The legislation refers to aid for "urgently needed" hospitals, which is interpreted as a desire to maintain existing capacity where need is demonstrated by continued use. In 1969, HUD delegated authority for processing loan guarantee applications and monitoring loans to the then Department of Health, Education and Welfare. This arrangement continues today, with the Office of Health Facilities in the Public Health Service responsible for the HHS role. However, HUD retains authority over program policy, issues all regulations, and must approve major program changes.

Current Policy. The FHA 242 program is self-supporting through premiums and user fees; it draws from the loan insurance fund which is derived from a 1/2 percent per annum fee collected from the mortgagors. Because it guarantees repayment of debt, it improves the bond ratings of less creditworthy hospitals. This in turn reduces interest rates and, most importantly, facilitates access to tax-exempt financing.

As of December, 1984, 226 mortgages had been insured at a total value of \$4.2 billion. Currently, 140 mortgages are still active, with an unpaid balance of \$3.0 billion. To be eligible for these mortgage guarantees a hospital must prove financial availability as well as obtain state licensure and CON approval. However, there is currently no way of limiting the aggregate amount of mortgages insured or the size of any particular project, nor of targeting the program's benefits to particular hospitals.

Issues. The FHA 242 program poses financial, administrative and distributional issues. While hospitals may obtain loans at somewhat lower interest rates because of the 242 program, its overall effect may be to encourage debt financing that might not otherwise have taken place. Thus, under current cost-based

capital payment policies, the program may increase costs to Medicare. Between 1974 and 1978, reimbursement for interest increased as a proportion of Medicare and Federal Medicaid reimbursement from 1.5 to 2.6 percent. In addition, as discussed above, Federal revenue losses result from hospitals' increased access to tax-exempt financing.

Another financial issue is the exposure of the Federal government. In recent years the size of both approved mortgage insurance applications and pending applications has grown markedly, while the number of approved applications has essentially remained the same. This has generated concern among program officials responsible for overseeing the FHA 242 portfolio. The mortgage insurance fund could be jeopardized by the default of a large loan.

In terms of administration, some hospitals, investment bankers, and bond authorities assert that the application process is unduly long and burdensome. The application is reviewed separately by two offices within HHS and HUD. The appropriate HHS regional office reviews the programmatic, architectural, engineering and legal aspects of the proposed project. Once these reviews are complete, the regional office makes a recommendation to the central HHS Office of Health Facilities, (within HRSA), which passes it on to HUD. At this point HUD notifies the mortgagor to submit a formal application which is reviewed by HUD centrally and at their area offices, as well as by HHS for any changes. In several instances the application process has taken two years to complete. To decrease the time it takes to process an application, the Office of Health Facilities has initiated a new concurrent review for regional and central offices, effective October 1, 1984. However, there is little HHS can do to reduce the time taken by HUD for review.

Another administrative issue relates to the need for detailed programmatic and architectural design review by HHS. There is some feeling that this review may duplicate State CON and licensing requirements. This question is currently under study by the Office of Health Facilities.

Distribution issues relate to the fact that FHA 242 insurance loans are disproportionately skewed toward medium-sized, voluntary hospitals in the Northeast. The concentration of insurance loans in the Northeast is greater than the concentration of existing hospital plant assets in that region. State distribution is similarly skewed; New York has a large share of FHA 242 dollars (42.3 percent), while California, with its own State mortgage insurance program, has only 3.1 percent of the 242 insurance loan dollars.

FHA-insured hospitals in general are larger, more urban, and have higher operating costs than non-FHA voluntary, investor-owned public hospitals. In 1980, costs per patient day were higher in FHA hospitals -- \$250 for FHA as opposed to \$240 for non-FHA

voluntary and proprietary hospitals, and \$230 in all public hospitals. As might be expected because they have made more recent investments, FHA hospitals had higher interest and depreciation than non-FHA hospitals. In 1980, the ratio of capital to operating costs for FHA hospitals was 9 percent -- significantly greater than comparable figures of 6.6 percent for non-FHA private hospitals and 4.8 percent for public hospitals. However, FHA hospitals do not differ significantly from non-FHA voluntary and proprietary hospitals in the proportion of Federal beneficiaries served.

The current distribution of FHA 242 insurance suggests that this Federal subsidy may not be reaching hospitals needing credit assistance to maintain capacity. Since debt financing for capital investment is more often available to affluent voluntary and proprietary hospitals, the investment level of such hospitals has been increasing, while poorer voluntary and public hospitals serving large numbers of public beneficiaries, become increasingly under-capitalized. While public hospitals are now eligible for FHA 242 insurance, as of November 1984, a year after passage of this statutory change HUD had not published implementing regulations. When public hospital applications can be considered, some of this imbalance may be ameliorated.

Options. Other than continuing current policy, three options have been suggested for the future of the FHA 242 program:

- o Elimination of the program. This was proposed by OMB in 1982 but not considered by Congress.
- o Transfer to HHS and authorize limits and targeting. This was included in the HUD legislative submission to OMB in 1983. It is also included in Senator Heinz' proposed Medicare Incentive Reform Act. In 1982 and 1983 HHS considered the transfer with limits and targeting but did not submit the proposal. The legislation discussed provided limits of between 75 percent and 87 percent of a project's replacement cost that would be covered by mortgage insurance. It would have identified the types of hospitals to receive priority for loan insurance, which would allow more specific targeting. By regulation, we could either define criteria explicitly (e.g., require an applicant to serve a certain proportion of public beneficiaries and non-paying patients) or review groups of applications competitively according to the priorities.
- o Attempt to limit and target without the transfer. This would involve the legislative limits and priorities described above. HUD has issued proposed rules to do this, but the policy is still under review.

Discussion. Of the three options, elimination seems least feasible, since Congress not only rejected it when proposed but



subsequently expanded the program. In terms of the five goals for capital policy discussed in Chapter VI, continuation of the FHA 242 program could mean slightly lower Federal tax revenues. However, this effect is limited by the relatively small proportion of capital spending affected. In the presence of continued cost-based reimbursement for capital, it could also mean slightly higher Medicare expenditures. This would not occur with a formula-based capital payment.

A case can be made for a limited and targeted Section 242 program on distributional grounds and to help maintain capacity in specific areas. Improved bond ratings resulting from the Section 242 guarantee could enable capital-poor hospitals to enter the tax-exempt bond market for the first time. Thus some of the pressure to meet the needs of hospitals serving large numbers of public beneficiaries through capital payment policies could be alleviated, while providing aid in accessing capital in a more focused way. Imposing aggregate limits and limits on individual hospitals would protect against Federal exposure in the case of defaults and would halt the current trend toward larger projects for fewer hospitals. In addition, while the Administration has opposed the direct loan and grant programs under the Health Planning Act because they increase budget costs, the FHA 242 program is self-supporting and there are no direct costs to the government.

If a decision were made to keep the program and attempt to limit and target it, the transfer to HHS offers some programmatic and administrative advantages. Administratively, the application process, which is now performed in HHS and HUD, could be further streamlined if the program were housed in one department. Another possibility for streamlining would be to reduce or eliminate the detailed review of architectural design now performed by HHS. Furthermore, a transfer of authority for Section 242 could pave the way for a more efficient system of default management. Current regulations within HUD stipulate that a defaulted Section 242 mortgage must be repaid immediately. However, in the case of loans previously guaranteed and still outstanding under the Hill-Burton program, which HHS also administers, we can carry a defaulting hospital's loan for an interim period to allow the institution to recover its financial stability. This lessens the likelihood of foreclosure.

While limits and targeting are possible without the transfer, getting HUD to issue the necessary regulations could be a problem because the 242 program is small and relatively unimportant in that Department. As mentioned above, implementing regulations for the extension of eligibility to public hospitals have been delayed over a year. In addition, all HUD regulations must be approved by the Congressional authorizing committees, which adds to the delay. On the other side of the ledger, the transfer from HUD to HHS would require approval from two authorizing committees in each house--the banking committees with jurisdiction over HUD legislation and the Senate Labor and Human Resources and House

Energy and Commerce Committees, which control Public Health Service statutes.

### CON AND HEALTH PLANNING

The National Health Planning and Resource Development Act of 1974 required all States to establish CON programs to review and approve capital expenditures in plant and equipment proposed by institutional health facilities according to plans developed by a mandated network of State and local agencies. The structure of the program is provided in detail by statute, and failure by hospitals to comply with CON review usually results in denial or revocation of a license to operate.

Current Policy. Prior to 1974, 23 States had implemented their own CON programs. Implementation of the federal mandate proceeded slowly, and was not completed until 1978. From 1979 through 1981, States reviewed over 20,000 CON applications for capital expenditures totaling more than \$31 billion. Of those reviewed, approximately 2,000 applications totaling \$4.4 billion were disapproved. CON application requests ranged from \$450,000 to \$3.8 million. The disallowed applications accounted for 10 percent of all applications reviewed and approximately 15 percent of the national total for capital expenditures. Hospitals accounted for 58 percent of the applications and 80 percent of the total dollar volume. Based on a sample study of approved capital expenditures by hospitals conducted by the American Health Planning Association in 1978-1979, approximately 60 percent of the capital expenditures were for renovation and/or replacement, 18 percent for new construction, 13 percent for equipment and 9 percent for miscellaneous expenditures.

In 1981 and 1982, the Administration proposed to discontinue all Federal funding and requirements, citing a lack of effectiveness in controlling costs nationally, as well as the desire to increase State flexibility and decrease Federal regulation. Authorization for the Health Planning program expired in 1982. However, funding for the Federal program has been maintained via continuing resolutions. Although the Congress has not agreed to discontinue the program, Federal funds have been substantially reduced. In addition, Congress has allowed States the option to eliminate local planning agencies if they so desire. Presently, the number of local agencies receiving Federal funds has been reduced from approximately 200 to 100. Each State is still required to have a planning agency and a CON program, although Federal sanctions for non-compliance have been eliminated. However, three States and one territory have terminated CON and six more are considering termination of their programs. Six States have attempted to strengthen their CON programs by establishing a moratorium on various types of hospital expenditures. Some States are considering capital caps to limit investments and to focus on the allocation of scarce resources to those areas most in need.

Congress has considered various bills, ranging from the establishment of a Health Planning Block Grant which would allow optional State participation and flexibility to determine the need for and appropriateness of the CON program to reauthorizing the current program with minimal change to the existing requirements.

Issues. CON is a form of market entry regulation which was believed to prevent duplication and reduce excess capacity, thus helping to contain costs. Its effectiveness has been questioned for a number of reasons. Based on previous experience with public utility regulation, there is the possibility of capture by the regulated industry. Also, limiting capacity can effectively grant franchises to existing facilities and preclude the entry of more efficient competitors. In addition, reductions in insurance coverage and elimination of cost-based reimbursement are likely to be more effective than market entry regulation in controlling health care costs. Finally, the highly structured and Federally mandated program does not allow States the flexibility to organize programs to control hospital costs in accord with their own situations.

Thus, the question for policy makers is not simply whether applications were denied, but whether money was saved. Of five major published studies analyzing national outcomes of CON programs, one showed slowing of the growth in hospital capacity and none indicated cost savings attributable to CON. The reasons for this disappointing performance are unclear, but perhaps should not have been unexpected insofar as a Federal health planning effort is concerned. Certain State CON programs did seem to be more effective than others in controlling capital expansion and reducing excess capacity. Some of these States may have exercised more political will to be tough and preclude capture; others may have benefited from congruency between regulatory goals and the results of existing economic forces. In sum, the spotty record of capital regulation and the failure of the Federally imposed structure suggest that if it is to be done at all it should not be a Federal responsibility.

Options. Other than continuing current policy, three options have been suggested for the future of health planning and CON.

- o Eliminate. In 1981 and 1982 the Administration proposed to discontinue all federal activities in health planning.
- o Retain as block grant with optional CON. The Quayle bill, currently under consideration by Congress, would establish a Health Planning Block Grant which would allow optional State participation and flexibility to determine the need for and appropriateness of the CON program.

- o Retain as is or with minor changes. This would be similar to the proposal offered by Representative Waxman.

Discussion. Elimination of the Federal role consistent with the Administration's position would save Federal grant dollars and decrease regulatory burdens. The impact of elimination is not likely to affect Medicare costs or hospital capacity, because States with strong CON programs are expected to continue them regardless of Federal support. There would likely be some distributional effects from the elimination of CON programs that are somewhat weaker but favor investment by certain types of hospitals.

#### SECTION 1122 PROGRAM

Section 1122 was added to the Medicare and Medicaid statute by the Social Security Amendments of 1972. Thus it was actually the first Federal effort at capital regulation precluding mandatory CON. Section 1122 authorizes the withholding of Medicare and Medicaid reimbursement for capital costs (depreciation, interest and return on equity) of a project that a designated State planning agency finds inconsistent with its own standards.

Although the procedures and criteria for the review of projects under Section 1122 and CON are similar and are usually performed simultaneously, the ramifications for non-compliance differ. While sanctions for CON usually involve denial and revocation of an operating license, 1122 affects only the Federal payments made under the Medicare and Medicaid programs. Another distinction between the programs is that State participation in the 1122 program is optional. By 1975 thirty-five States had voluntarily established 1122 reviews and only West Virginia had neither a CON nor 1122 program. However, as States passed CON laws required by the 1974 planning legislation, they dropped out of the 1122 program. This was largely because of the overlap with CON and the fact that administration of dual programs was complicated by minor differences in procedural requirements. Currently, only 16 States and the Virgin Islands are participating in the program.

Initially, Congress authorized Medicare Trust Fund expenditures for 1122 programs. However, no Trust Fund dollars have been spent in recent years as States relied on health planning funds to carry out joint activities. In 1983, in addition to the mandatory 1122 trigger, Congress repealed the Trust Fund tap and provided for 1122 funding from general revenues, but with no appropriation.

Until recently, little was known about the separate impact of the 1122 program because information on approvals was intermingled with CON data. In August 1984 Lewin and Associates and the Alpha Center completed a study for the Office of Health Planning in the Public Health Service which attempted to separate and compare 1122 and CON. They found that from 1979 to 1983 6.8 percent of



1122 applications and 13.4 percent of the dollar value of projects submitted were denied or withdrawn. In 1983 11.9 percent of applications and 22.2 percent of the dollar value of projects submitted were denied or withdrawn. The larger percentage in dollar value implies that larger projects were more likely to be denied or withdrawn. For hospitals only, \$1.8 billion in projects were denied or withdrawn during this period. Projects involving physical plant changes constituted the overwhelming share of these unapproved projects. Equipment-only projects were the most likely to be approved. For 1983, 4.2 percent of equipment applications were denied or withdrawn as compared to 13.9 percent for plant. This is consistent with some CON evaluation findings.

The study found that compliance with review decisions has been high, in part because of the 1122 sanctions, but also because State CON restrictions have also been in place in many 1122 States. As a result, only a small amount of reimbursement has actually been withheld under the program. Compliance in States with both CON and 1122 is nearly 100 percent; in the States that operate 1122 without CON, compliance has also been high, but not as high as with CON.

Issues. The issues for Section 1122 capital expenditure review are somewhat different from those for CON. While neither program has been effective on a national level in controlling overall costs, and both involve regulatory decisions, 1122 review does control the outlay of Medicare and Medicaid funds for capital expenses. Therefore an argument has been made that if cost-based reimbursement for capital continues, the Federal government as a prudent purchaser may want to limit its exposure through 1122. At the same time, Congress would apply 1122 penalties to all reviewable projects without explicit approval, instead of applying the full penalty only to disapproved projects as at present (i.e., hospitals can now circumvent most of the financial sanction by not going through review). Other issues involve the cost and administrative feasibility of a mandatory 1122 program.

Options. If capital costs are not included in prospective payment by the end of FY 1986, there are three options for the future of the 1122 program.

- o Eliminate. This would require repealing the provision the 1983 legislation that established the trigger for a mandatory program.
- o Retain as optional. This would require changing the above provision.

Discussion. If prospective payment for capital is enacted, Medicare capital costs would be constrained, and the only reason for supporting a mandatory 1122 program would be to continue a form of regulation that the Department opposes. In terms of distributional impact, a mandatory 1122 program could adversely

affect Medicare beneficiaries in the absence of CON. The cost of a mandatory 1122 program could largely offset savings from eliminating health planning and CON. Costs would range from \$20 million for State activities only, to \$50-\$60 million if current local planning activities are continued as well. An optional 1122 program would probably cost about two-thirds as much as a mandatory program. This is because in the absence of Federal funds for health planning and CON States wishing to retain these activities would reestablish their 1122 programs to cover their costs. How much money is withheld for unapproved projects under 1122 depends on the percentage of Medicare/ Medicaid patients in a facility. A facility that has few or no Medicare or Medicaid patients will be little affected by the 1122 sanction. Finally, the effectiveness of the 1122 sanction under a mandatory or optional program will be affected by the profitability of the DRG-based reimbursement the hospital is receiving and its overall net revenue margin. If under Medicare prospective payment a hospital can increase its volume in one or several profitable DRGs through an unapproved capital expenditure, the greater profits from those DRGs may more than offset the reimbursement reduction on the capital items.



## CHAPTER IV

### WHAT WE CAN LEARN FROM OTHER CAPITAL PAYMENT APPROACHES

In designing Medicare's capital payment system we can examine other approaches to gain insight into an appropriate methodology and payment level. Although there is not a situation completely analogous to that faced by Medicare, other approaches can, at least, define the parameters of the capital payment issue and alert us to some possible problems.

This chapter provides a brief overview of the way capital is defined and paid for in other industries (with emphasis on public utility regulation), in the hospital sectors of other countries, and in States with Medicare waivers. It draws on the following studies: Capital Payment Policies in Other Industries: Lessons for Hospitals, by Frank Sloan, Financing the Hospital: The Experience Abroad, by Uwe Reinhardt, Treatment of Capital Costs in Four Medicare Waivered States: Maryland, New Jersey, New York and Massachusetts, by Jerry Cromwell, Kathleen Calore, and Gerard Wedig, and Approaches to Setting the Level of Payment for Hospital Capital Costs under a Prospective Payment System, by Harold Cohen and Jack Keane. The most relevant experience for the formulation of Medicare capital payment policy is that of the States with Medicare waivers to operate rate-setting programs.

#### OTHER INDUSTRIES

Other industries offer lessons in determining the cost of capital and allocating those costs. Most of the discussion in this section will be on the rate-regulated industries, particularly those under cost-of-service regulation. The rate-regulated industries are examined because a government or public body must determine the appropriate payment for capital as well as for operating costs in setting consumer prices. The section also addresses defense contracting because the Department of Defense is a major purchaser from the private sector much as the Department of Health and Human Services is a major purchaser of health services under Medicare. Although the defense industry provides some interesting parallels to the health care sector, defense contracting is cost-based or otherwise project-specific. Finally, before offering conclusions, this section provides some comparisons on the frequency and extent of capital investment in the health sector as compared with other industries.

Rate-Regulated Industries. Traditional public utility theory has advanced two major rationales for public regulation of prices in certain industries: to control monopolies and to control excessive competition. In some industries, such as public utilities, the average cost per unit of service would rise if there were several competitors in an area. If the economies of scale are extreme, all but a small number of firms might be

eliminated. Then these surviving firms might raise prices above the competitive level, resulting in lower demand for the product which, in turn, leads to a welfare loss to consumers. In these industries the role of the regulator is to set a price for the product that is equal to what would have been set in a competitive market.

Other industries, typified by airlines, may be subject to excessive competition. If firms in these industries have substantial fixed costs and excess capacity, and rivalry forces them to sell their products at short-run marginal costs, they will not earn revenue sufficient to cover their fixed costs. As the financial condition of these firms deteriorates, they will not be able to maintain their plant assets in good condition and quality and dependability of service will decline. The regulator in this case limits entry and fixes a minimum price which will permit the recovery of the firm's fully allocated costs of providing the service. A maximum price may also be established.

The methods used by regulators for setting prices under these circumstances are important for this discussion. The two primary methods are historically based price regulation and cost-of-service rate-making.

- o Historically Based Price Regulation. This method has been used when a large number of dissimilar firms are involved, such as under the economy-wide Economic Stabilization Program (ESP) of the Nixon Administration. The regulator starts with a base price and updates this price periodically for inflation. This method rewards the inefficient firm -- the one with high costs and prices -- by allowing and updating its excessive costs, while penalizing the efficient firm which starts from a lower rate base. It also does not allow for technological changes that may increase or decrease costs.

Although historically based ratemaking has the advantage of simplicity, this approach generally results in pressures to incorporate elements of cost-of-service ratemaking. This occurred during the transition from Phase I to Phase IV of ESP. Medicare's new prospective payment system for operating costs has certain characteristics of historically based price control. There are two major distinctions, however. First, Medicare's prices are hospital-industry-wide rather than firm-specific. Second, by establishing prices for individual DRG "products," the system adjusts payment in response to some case-mix changes that might occur.

- o Cost-of-Service Ratemaking. Cost-of-service ratemaking has greater similarity to Medicare's cost-based approach, which is still in effect for capital. The objective in setting rates is to allow the firm to recover the economic cost of providing the service, or its "revenue requirement." The problems in determining the revenue requirement are similar to those in determining the appropriate level of payment under Medicare. However, there are some important differences. In cost-of-service ratemaking, the regulator determines the revenue requirement as the sum of: (1) operating expense plus depreciation expense per unit of time; (2) taxes per unit of time; and (3) the allowed rate of return on the rate base, which is defined as the original cost value of assets less accumulated depreciation.

When the regulated firm is a monopolist, the three variables that sum to the revenue requirement are firm-specific. When a single uniform price is set for several firms in an industry, prices are derived from industry data and assumptions about the regulated industry. Controlling prices of a large number of firms (as would be the case with Medicare) is necessarily more complex, especially when there is substantial variation among firms in cost and in the nature of the product. Prices are determined by dividing an anticipated volume of product into the revenue requirement.

Calculating the asset base, depreciation, and the rate are analogous to some of the calculations for Medicare's capital components. The asset base is important because it affects total profit, along with the allowed rate of return, and it also affects depreciation payments. In contrast to Medicare, which treats current depreciation as a capital cost, the cost-of-service regulator usually combines annual depreciation with operating expense. Depreciation expense is an important item in this equation because it is added to the operating expense as part of the total cost, it is used in computing taxes, and accumulated depreciation is subtracted from the asset value to determine the rate base. Depreciation is also one of the more contested costs because it is estimated, not derived from actual payments to employees or suppliers.

The asset base can be calculated on original cost, reproduction cost (as originally constructed) replacement cost (current service level), fair market value or stock market value of the capital assets. Most State public utility commissions use the original cost of the assets because its calculation is straightforward and because it generally gives greater stability to the rates. In determining the asset base, the allocation of joint costs and the items included are important issues. Cost-of-service regulators generally make some allowance for the

treatment of property intended for future use, including construction in progress. Medicare presently does not include an explicit payment for construction in progress, although interest expense incurred by the hospital during the construction phase may be capitalized and amortized over the useful life of the asset. While Medicare's current approach is probably satisfactory for hospitals with good access to capital markets, it may put those institutions which are not so well situated at a disadvantage in financing construction.

The allowed rate of return for regulated industries is as controversial as is determining the asset base and depreciation. This is analogous to the rate at which Medicare pays a return on equity to investor-owned hospitals -- currently the same as the interest rate on bond issues of the Medicare Trust Fund. The public utility regulator's goals in establishing the rate of return are to be fair to the investors, fair to consumers, recognize the firm's need to attract capital, and maintain administrative simplicity. The final allowed rate of return is supposed to mimic the result of a competitive market, in which optimum economic efficiency is achieved. The allowed rate of return is determined prospectively and thus reflects the regulator's judgments about the cost of capital in the future. The cost of both debt and equity capital must be determined. The cost of capital financed with debt is easy to determine; it is equal to the interest rate. The cost of equity capital is more difficult to determine; it involves adjusting an imputed rate of return for the differential risk of investing in a particular firm. If this risk is not recognized or is underestimated, there will be an outflow of capital from the regulated industry.

One problem with rate regulation is that it introduces incentives that may lead to inefficiency in the regulated firm. The unregulated monopolist has one objective: to maximize profits. In contrast, the monopolist subject to cost-of-service regulation tries to make as much profit as possible, subject to the profit constraint imposed by the regulator. When the allowed rate of return exceeds the cost of capital, the firm with profits constrained by a price ceiling can earn more if it increases its base. Thus the monopolist may have an incentive to utilize more capital than it would if it were not subject to rate regulation. The overuse of capital, if it occurs, means that output is not produced at the least cost. This bias favoring capital, known as the Averch-Johnson effect, is discussed in Chapter II in relation to Medicare's capital policies. Even in theory, however, the Averch-Johnson effect is not an inevitable consequence of cost-of-service regulation. If the allowed rate of return is set below the cost of capital, as is alleged to have occurred in the electric utility industry with increasing frequency in recent years, the regulated firm may use too little capital relative to other inputs.

Another problem with either type of rate setting is regulatory lag. This refers to the period between the time a production

cost increase occurs and the time the regulatory authority actually adjusts prices in response to the cost changes. Regulatory lag can occur for a number of reasons, but the major cause in recent years has been inflation. As long as inflation was low, prices could be set by a regulatory authority and maintained for considerable time periods. With high inflation the rates cannot keep up with cost increases. In fact, the frequency of requests for rate increases in industries subject to maximum price regulation is closely related to inflation. Automatic adjustments to the rate base or to one or more elements can reduce the effect of regulatory lag. This, however, can make the producer less cost-conscious of the indexed inputs and thus less efficient. The weakness of regulatory lag is also its strength. To the extent that growth of product prices is held below growth of operating cost and the price of a new plant and equipment, regulated firms will invest less. Public utilities stress the danger that their plants will become outmoded and unable to meet a growing demand as a consequence of regulatory lag. Yet regulatory lag may mitigate distortions in the use of inputs attributable to the Averch-Johnson effect.

Defense Contracting. The Department of Defense (DOD) has a relationship to defense contractors similar to the relationship that the Department of Health and Human Services (HHS) has to hospitals. The Federal government is a major purchaser from the private sector with monopsony power. Defense contracting and contracting for medical services are similar because there is considerable difficulty and uncertainty in predicting the technical performance and reliability of what is purchased. DOD purchases some standardized, routine items. Larger projects, however, cannot be standardized and high quality must be maintained. Health care services are also difficult to standardize and quality is an important factor. Cost-based contracting in defense is very similar to cost-based reimbursement of hospitals. Interest and depreciation are paid for in the same way. There are differences between the industries in treatment of profit and in willingness to use incentive contracting. DOD uses a variety of contracting methods with quite different incentives for efficiency. For example, the firm-fixed-price method gives the contractor an incentive to minimize cost, but it is inappropriate for contracts in which the substantial uncertainties of the weapons development and production process may lead to "skimping." It is primarily used in purchasing standardized products. Under a cost-plus-fixed-fee contract, price is almost completely flexible, but the fee is fixed. The fee is derived from a calculation of the project's "profit objective," as determined by DOD. This profit objective does not necessarily reflect the project's capital intensity. Since the contractor gets the fee almost irrespective of the actual cost incurred, the contractor's only incentive to monitor costs is the possible reluctance of the government to negotiate another contract in the future.



The parallels between defense contracting policies and Medicare hospital payment were greater under Medicare's previous cost-based reimbursement system than under the current prospective payment system. In any case, defense contracting practices treat capital costs explicitly only in cost-based calculations specific to individual firms and projects. There is little relevance here for a Medicare capital payment policy based on industry-wide rates.

Comparison of Capital Activity. Substantial controversy exists regarding the extent of the need for capital investment in the hospital industry, as discussed in Chapter II. Some recent writing on hospital capital requirements implies that reasonable estimates of replacement investment can be generated by examining the age distribution of hospital plant and equipment currently in place.

One set of data comparing the average age of hospital plant in the U.S. to that for the assets of other industries was compiled by Donald Cohodes of Blue Cross. He shows that hospital plant assets are one-third the age of assets in U.S. manufacturing industries (7.32/22.91 years) and one half the age of assets in non-farm non-manufacturing industries (7.32/14.96 years). Another comparison of the rates of economic depreciation of various types of structures reports a 0.02 percent annual rate of decline for hospitals and other institutions, the same as for commercial and educational buildings, with public-utility structures at 0.03 percent and industrial structures at 0.04 percent. Thus when the hospital sector is compared with other industries, it appears relatively well capitalized. However, it should be remembered that the life of a physical asset is not constant. Firms in other industries do not replace their assets according to a predetermined and fixed schedule. Rather, product demand, technological change, input prices, and tax policy all influence the timing of replacement investment. Studies of other industries have found that replacement investment is tied to the availability of funds while expansion investment depends more on product demand.

Conclusions. Medicare cannot directly adopt a method of paying for capital from other industries. There are certain characteristics of the hospital industry and the product involved that make comparisons with other industries difficult. While the product of a hospital is not easily standardized, HHS has made progress in achieving some measure of uniformity through DRGs. Yet capital remains uncontrolled and public utility regulation of capital has drawbacks. The hospital industry is dominated by not-for-profit firms which behave differently from for-profit firms, and the objectives of the prospective payment system are much more comparable to those of a prudent purchaser than those of the rate-setter.

There are, however, a few lessons to be learned and problems to be avoided. Under a regulatory system, calculating



depreciation and defining the asset base to which this is applied are crucial. The current situation in which operating expenses are constrained by prospective payment but capital costs are passed through could result in an Averch-Johnson effect, with investment in capital not determined in an efficient manner.

On the other side of the ledger, lags in updating the capital payment rates might result in failure to adjust these rates for changes in technology, either cost-saving or cost-increasing. Regulated firms, trade organizations representing them, and the financial community have frequently maintained that a tough regulatory policy in this area may be counterproductive in the long run.

Although incorporating capital costs into the prospective payment system is not a regulatory policy per se, the potential stringency of such an approach may change the investment climate and the perceived risk of investing in the hospital industry. It is possible that a prospective payment including an allowance for capital would increase the cost of capital to the hospital industry. Although overall the hospital sector is well-capitalized, distributional problems remain. Thus an average payment approach for capital (rather than facility-specific payments) could increase the uncertainty about the risk of any particular investment.

#### EXPERIENCE ABROAD

Everywhere in the industrialized Western world financing hospitals has been of concern to hospital administrators and those who directly or indirectly pay for hospital services. This concern stems primarily from the increasing claim of the hospital sector on the gross national product. Conflict arises when trying to reconcile the high value placed on health care with the need for economic efficiency in the use of health resources.

In health care the level of output of the industry is a societal concern. Developed societies typically expect the individual hospital to treat sick patients regardless of their ability to pay. By imposing this mandate upon the hospital, society implicitly shoulders the responsibility for the hospital's financial soundness and the right to ensure the hospital's accountability. Thus hospital financing is strongly affected by governmental -- and political -- decisions. Other countries cannot offer a hospital financing system optimal in the sense of pure economic efficiency. Medicare policy can benefit, however, from an examination of the hospital financing systems of other countries and particularly other methods for financing capital expenditures.

A general review of hospital financing in six European countries and Canada reveals that there are two predominant mechanisms used to channel financial resources into individual hospitals: global budgeting and prospectively set per diem rates. The United

Kingdom, Sweden, Finland, and Canada finance their hospitals through global budgets. Hospitals are given a prospectively set overall annual budget intended to cover all of their costs. Capital costs generally are covered in the form of outright grants incorporated into the global budgets. Hospitals in Holland and West Germany receive prospectively set per diem payments with separate budgeting or grants for capital costs. France finances hospitals through global budgets that are calculated based on per diem rates. Capital costs are partially financed through subsidies from the central and local governments.

All of these countries except Holland have some sort of comprehensive national health insurance system. They also have a centralized health plan either for provinces or the entire country. The countries differ in the origin of the hospital budgets and requests for increased services. Some proceed from the national plan and allocate to the provincial level while others begin at the local level and proceed to the national budget. Table IV-1 provides a brief overview of the structure of these countries' hospital financing systems. Each country's system is summarized below.

Canada. Canadians are covered by a universal and comprehensive national health insurance system that is administered through provincial medical and hospital insurance plans. Funds are distributed to hospitals via a global, prospective budget. Depending upon the size of the hospital and upon the province, the global budget may be based either upon annual line-item justification, or upon percentage increases in a base-year line-item budget that is only periodically reviewed in detail. The prospective global budget is divided by projected patient days to arrive at an approved per diem rate.

The global budget typically covers all authorized operating costs including depreciation of medical equipment. Funds for the construction of facilities are appropriated separately. These funds come from a mixture of Federal, provincial, community and private sources.

Hospital planning is an iterative process under which local communities or hospital districts propose the elimination or addition of facilities. The provincial government reviews these proposals for approval or rejection. In principle, a local community could proceed without the approval of the provincial government, although this is unlikely because the bulk of capital and operating funds flow through provincial governments.

(Continued)

## A SYNOPSIS OF HOSPITAL FINANCING IN SELECTED COUNTRIES

## BASIS OF REIMBURSEMENT FOR:

THE ROLE OF HEALTH  
SECTOR PLANNINGCAPITAL  
COSTSOPERATING  
COSTSOWNERSHIP  
OF HOSPITALS

## COUNTRY

THE  
NETHERLANDS

Hospitals are owned by local communities or lay boards of trustees.

Until 1983 by negotiated per diems and charges; since 1984, by annual global budgets. The system is still in a State of transition.

Until 1983, the per diems included amortization of capital costs. Since 1983, hospital are reimbursed for capital costs via separately controlled line items in the budget.

Construction of facilities and acquisition of major medical equipment requires a government-issued license which is issued on the basis of regional and national health-sector planning.

## SWEDEN

Hospitals are owned and operated by local community councils.

Annual budgets, controlled by the local community councils.

Community-financed, by means of specific appropriations voted by the community councils.

The capacity of the hospital sector is planned and controlled at the community level. There is no formal national health plan.

## FINLAND

Hospitals are owned and operated by local community councils.

Annual budgets, determined by a system of national health planning and ultimately controlled by the central government.

Specific appropriations; financed in part by the communities and in part by central government subsidy.

There is a system of national health planning ultimately controlled by the central government. A system of central-government subsidies effectively controls the capacity of the hospital system.

WEST  
GERMANY

Hospitals are owned by local communities, by religious foundations, or by private individuals (usually physicians).

Prospective, hospital specific, all-inclusive per diems negotiated between the hospital and regional associations of sickness funds. These rates are subject to approval by the State governments.

Financed by the Federal and State governments through lump sum grants (for short-lived equipment) or upon specific application (for structures or long-lived equipment).

Capital investments are approved and financed by the State governments on the basis of State-wide hospital planning. The State governments therefore control the capacity of the hospital system.

Table IV-1 A SYNOPSIS OF HOSPITAL FINANCING IN SELECTED COUNTRIES

BASIS OF RETIREMENT FOR:

COUNTRY	OWNERSHIP OF HOSPITALS	OPERATING COSTS	CAPITAL COSTS	THE ROLE OF HEALTH SECTOR PLANNING
CANADA	Hospitals are predominantly owned by lay boards of trustees or by communities.	Annual prospective global budgets controlled by the provincial governments.	Separate capital budgets granted, upon specific approval of proposed investments, by the provincial government.	The hospital sector is subject to planning by the provincial government. The capacity of the system is fully determined by the provincial governments.
UNITED KINGDOM	Hospitals are owned by the central government's National Health Service.	Annual prospective global budgets controlled by the National Health Service (i.e., the central government).	Separate capital budgets controlled by the central government.	The central government's National Health Service develops the nation's health plan on the basis of consultation with local health officers and local governments. Because the National Health Service owns all but the few private hospitals, the central government fully determines the capacity of the hospital system.
FRANCE	About 70 percent of all hospital beds are publicly owned (mainly by local governments), the rest are privately owned.	Prospective per diem and prospectively set charges for particular services. Three per diem and charges are government controlled.	Capital costs are recovered in part through amortization allowances in the per diem and charges. The balance of the costs are financed through subsidies from the central and local governments.	The hospital sector is subject to regional and national planning. The central government, through its health plan, determines the capacity of the hospital system.

The United Kingdom. In the United Kingdom hospital financing is an integral part of the British National Health Service. The country's hospital sector is wholly financed by the central government out of general tax revenues. The central government determines the national health care budget, composed of operating and capital budgets, as part of its overall fiscal policy. Allocations from the national budget are distributed first to the Regional Health Authorities, which in turn parcel out their funds to the District Health Authorities.

The individual hospital's prospective budget is based upon its projected service load and standardized costs for individual services. These costs represent averages over many hospitals in a given class based on the most recent actual data.

The flow of funds follows an overall national health plan that allocates resources on the basis of projected population and certain health-status indicators. The national budget for health services provides the ultimate constraint at the local level. Because the financing of British hospitals proceeds within a formal national health plan, it is relatively easy to incorporate capital costs directly into the budget for each hospital.

France. Hospital services in France are financed through a national health insurance system consisting of several sickness funds. The largest of these funds covers 75 percent of the population. Coupled with this national health insurance system is a mixed public and private delivery system. Hospitals receive patient revenues in the form of predetermined per diems and charges. The per diem rates are set prospectively, based on a global hospital budget approved by a regional health official. The approved hospital budget includes an allowance for depreciation and interest costs.

To the extent that the hospital's rate does not cover the costs of new capital expenditures, these are financed through direct subsidies by the local community or through loans from public institutions. Receipt of subsidies or loans is contingent on the consistency of the investment with a regional health plan. The entire French hospital system is subject to formal health sector planning. A national health plan is based upon the plans of local health districts and larger regions. Population-based standards are set for both bed capacity and medical equipment.

The Netherlands. In the Netherlands a mixture of private and social health insurance finances a largely privately owned, non-profit health delivery system. Four-fifths of the hospitals in Holland are voluntary institutions and the remainder are publicly owned. At the present this system is in a state of transition. Until 1983, a hospital had the choice of receiving a single, all-inclusive per diem or a basic per diem covering the cost of room and board, depreciation, and interest along with predetermined charges for individual major services. These rates and charges were negotiated prospectively by individual hospitals and



insurance carriers. They were, however, subject to the approval of a central tariff authority.

Dissatisfied with the inflationary potential of flat per diems and charges for individual services, the Dutch government introduced global, prospective budgeting for hospitals in 1983. Budgets are negotiated between individual hospitals and insurance carriers, subject to approval by the central tariff authority. In order to accommodate several financing sources, these budgets are converted into prospective per diem rates, subject to retrospective volume adjustments. The construction or expansion of hospital facilities is permitted only upon receipt of a license issued by the National Minister of Health. Provincial governments may be compelled to draw up hospital plans which then can serve as the basis for granting construction licenses.

Sweden. Sweden's health care system is basically tax-financed, largely with an income tax levied by local governments. A small proportion of the total funding comes from the national government for the purpose of equalizing access to services across counties. The vast majority of Swedish hospitals and other health facilities are publicly owned. Swedish hospitals are financed with yearly operating budgets that are only indirectly related to the particular mix of services rendered that year.

The planning function is decentralized to the county and municipal level. Separate operating and capital budgets are appropriated by the county council after discussions and negotiations with the individual hospital administrators. Planning and financing of health care are thus fully integrated at the county level.

Finland. As in Sweden, the primary responsibility for the provision of health services rests with local government. Finnish hospitals are almost completely publicly financed. Forty percent of funding is provided by the local governmental units or communes, and over 50 percent by the central government, which scales its subsidies so as to equalize facilities among rich and poor communes. Individual hospitals receive payment for operating costs in the form of prospective global budgets. These operating budgets are based on proposals submitted by the hospitals to the local communal councils for approval.

Hospitals' capital costs are covered by separate budgets generated by a formal planning process. This process begins with the five-year plans of individual hospitals, which are then aggregated and modified at the communal level and submitted to provincial authorities for approval, based on the guidelines of the National Board of Health. The Board then integrates the local proposals into an overall national plan which must be endorsed by the legislature. Ultimately the communes and hospitals must adapt to the constraints of the national plan.



West Germany. The hospital financing system in West Germany is examined in more detail here because West Germany's health care system more closely resembles the pluralistic approach of the U.S. than do the other systems described. German hospitals represent a mixture of public, voluntary, and proprietary sponsorship. Hospital care is mostly financed by a network of semi-private sickness funds.

A hospital's allowable operating costs (including maintenance of existing capital) are reimbursed by insurers through an all-inclusive per diem that does not vary by insurance carrier and is constant over the patient's stay in the hospital. The per diems are set annually, on a prospective basis, by the state in which the hospital is located. They are determined through negotiations between the individual hospitals and the largest state associations of the insurance carriers. Retroactive adjustments may be made for actual reimbursable costs not accurately projected when the prospective per diems were set.

Since 1972, the capital costs of new investments have been paid directly out of public funds (both federal and state) within a framework of formal hospital planning that is executed by state authorities. There had been complaints of chronic under-financing under the single per diem rate covering both capital and operating costs in effect prior to 1972. The separation of capital and operating costs was based on the premise that the provision of adequate, modern hospital services was a public good and that it was neither appropriate nor financially feasible to saddle the insurance carriers with the cost of building hospital capacity. In retrospect, it appears that the chief effect of the dual system was not so much the fiscal protection of insurance carriers but the creation of a fiscal lever for public-sector hospital planning.

The Federal government of West Germany contributes about one-fourth of the public-sector payments for capital investments. The remaining three-quarters are contributed by the nine states. The Federal contribution is paid to the state which has the responsibility for planning and distributing the total to hospitals. Public sector assumption of this role has meant that general fiscal policy determines the amount of hospital investment. Capital investments are divided into four types: long-term investments (mainly buildings) with a useful life exceeding 30 years, medium-term investments (buildings and major equipment) with a useful life of between 15 to 30 years, short-term investments with a useful life of between 3 to 15 years, and small investments whose cost does not exceed approximately \$20,000. Funds for the first and second types of investment can be obtained from the relevant state authority only upon specific application which must be approved for conformity to the state's overall hospital plan. Funds for the third and fourth types of investment flow to the individual hospital in the form of annual lump sum allocations, based on a formula that takes into account

the number of beds in the hospital and the mix of services it renders.

Under this system West Germany has experienced some of the same problems found in the United States. Capital investments often trigger additional operating costs. The planners are able to impose these added costs on the insurers without knowing the total social cost of their decisions. A decade's worth of state-level planning has not succeeded in reducing the excess supply of West German beds. The size of the lump-sum transfers for small or short-term investment is tied to an individual hospital's capacity, thus providing an incentive to maintain excess beds. Because each of the four types of investment has a different financial mechanism, there are incentives for substitution among types of capital that make financial sense from the hospital's point of view, but may not make sense either from a larger economic or medical point of view.

These problems and problems with reimbursement for operating costs have led to repeated calls for a major reform of West German hospital financing. One reform proposal under consideration is to gradually withdraw the public sector from hospital planning and financing. All of a hospital's operating and capital costs would be covered by patient revenues, as in the pre-1972 system. Planning and financing would be transferred to regional associations of hospitals and of health insurance carriers which would develop a regional hospital plan and negotiate all prices for hospital services. A further proposal would also combine operating and capital costs but, in addition, modify the present per diem system. Patient days would be differentiated according to the complexity of cases being treated, much as in the Medicare DRG system for operating costs. Rates would be truly prospective (without retrospective adjustments), permitting hospitals either to earn surpluses or to suffer deficits.

The stated objectives of the proposed reforms are: (1) to have responsibility for planning coincide with responsibility for financing the planned capacity; (2) to have both plans and prices emerge from a system of countervailing power analogous to a market system; (3) to afford the individual hospital a higher degree of managerial freedom; and (4) to allow the individual hospital to benefit financially from efficient conduct or to suffer financially from managerial inefficiency.

Conclusions. This review of the systems in other countries suggest that the separation of authority for decisions about capital and operating financing present in the United States is rare. Yet it is obvious that the United States cannot adopt the capital financing system of another country. Most of these systems also represent a much greater consolidation of purchasing power than we have. Proposals being considered to reform the West German system, which is closest to ours, suggest that the West Germans want a financing mechanism with improved incentives

for efficiency and cost effectiveness, just as we hope to achieve under prospective payment.

#### STATES WITH MEDICARE WAIVERS

In directing HHS to report on the incorporation of capital costs into Medicare's prospective payment system, Congress asked that the experience of States with rate-setting programs be examined. Four States were granted waivers to continue their own rate-setting programs for Medicare and other payers: Maryland, New Jersey, New York and Massachusetts. In these States, Medicare pays for the care of its beneficiaries as part of the State systems, with the condition that cost savings must be achieved if the State is to keep the waiver in the future. (Both New York [January 1986] and Massachusetts [October 1985] now participate in the Medicare prospective payment system. However, elements of the capital payment systems discussed below are still used by these two states).

By using reimbursement principles that differ significantly from Medicare's, the four programs provide an opportunity to test alternative approaches to capital payment. Their experience can also be a useful guide to implementation and administration, and may help the Federal program avoid pitfalls. For each of the four States, this section provides a brief description of overall rate-setting methods and then focuses in on how the State values, pays for, and otherwise limits capital spending.

Maryland. Maryland sets a limit on the total amount to be paid to each hospital for inpatient services through one of two methods. The Guaranteed Inpatient Revenue inflation cap, which covers half the hospitals and 80 percent of hospital revenues, begins with a negotiated, stable base year for each hospital, then applies standard inflation factors to base costs to determine an allowable charge per admission in the next rate period. Hospitals then establish price schedules for individual services (e.g., room and board, ancillaries) to achieve the revenue targets. In determining expected charges, a casemix adjustment to volume is also made. When actual charges exceed expected charges, the hospital is penalized in the next period. When actual charges fall short, the hospital is allowed to keep half the difference between actual and expected levels. This 50 percent "reward" is intended to approximate the fixed portion of the hospital's costs.

The second method, the Inflation Adjustment System, covers the other half of Maryland's hospitals but only 20 percent of hospital revenues. It inflates a hospital's functional departmental expenses to the current rate year and then requires that total charges equal these projected expenses plus capital costs. Additional adjustments to allowable charges are made based on volume and inflation discrepancies. Finally, a markup is applied to the charges to allow the hospital to provide a 6

percent discount to Medicare, Medicaid and Blue Cross and to adjust for bad debt.

Under either system, capital is split into two parts. Each year hospitals are given a choice of how they want to be paid for the building and fixed equipment portion. They can get either all of their actual cash requirements (i.e., debt principal and interest expenses plus rental and repairs) or an annualized allowance towards a 20 percent downpayment on a replacement facility. This latter method is known as the Target Facilities Allowance (TFA). The TFA is constrained by a number of factors. First, expected building life is predetermined at 40 years. Second, the 20 percent target implies that future investment will be highly leveraged, at 80 percent. Third, if the hospital's occupancy rate is low or its area is overbedded, the number of beds the State will allow to be included in the replacement calculation is less. Thus planning parameters enter into the equation. Fourth, Maryland relies on exogenous cost-per-bed inflation indices applied to average historical costs in the State, as opposed to accepting actual recently incurred replacement costs per bed. This precludes paying for increased amenities. It is interesting to note that neither choice of payment method for building and fixed equipment costs involves reimbursement based on a depreciation schedule.

The movable equipment portion of capital cost payments is the sum of two components. Price-level depreciation is allowed for major movable equipment in capital-intensive departments like radiology, prorated over a fixed 10-year expected life. Hospitals replacing prior to 10 years do not accumulate a full price-level depreciation reserve.

A replacement allowance for equipment in other departments is determined by taking the previous year's general equipment allowance per bed, adjusting it by the inflation factor in the Producer Price Index for Machinery, and then multiplying by the number of occupied hospital beds. The original equipment allowance per bed was based on a detailed survey of equipment purchases in Maryland hospitals in the mid-1970s. Where the cash requirements associated with movable equipment exceed the allowance, the hospital can attempt to justify the larger figure as an adjustment. Finally, working capital is estimated at a constant 2 percent of the total cost base, although it is not included in revenue from Medicare, Medicaid and Blue Cross because they are assumed to pay promptly.

The Maryland system tends to discourage hospitals replacing or adding beds that are not likely to be well occupied by the provision of a lower downpayment relative to other, more highly occupied facilities. Moreover, by avoiding depreciation payments on the hospital specific portion of capital, and by using a 40-year life for building and fixed equipment and a 10-year useful life for major movable equipment, the system discourages frequent replacement. This is in contrast to Medicare, whose



payment of depreciation encourages rapid replacement and "luxury creep."

On average, the building and fixed equipment portion of Maryland's capital payment is not especially generous -- 4.2 percent of operating payments as opposed to Medicare's 4.6 percent. The introduction of exogenous standards keeps the TFA fairly low, and cash requirements are generally less than depreciation plus interest.

The payment for movable equipment, however, is regarded as being fairly generous. It averages 2.7 percent as opposed to Medicare's, 2.3 percent of operating payments. The total capital payment, exclusive of return on equity for Maryland's few proprietary hospitals is 6.9 percent of operating costs -- the same as Medicare's capital payment excluding return on equity.

Some believe that the separation of fixed and movable capital costs is a strong point because it allows for different useful lives, given that a significant part of the calculation for both components is hospital-specific. If such a separation were applied to a system where one component is passed through, however, decision-distorting incentives could be a problem. One weakness of Maryland's system is that it remains dependent on the planning process to control for building, fixed and major movable capital. For projects with certificate-of-need approvals, hospitals assume they will get an automatic rate adjustment. This is not necessarily true for building and fixed spending, since the payment depends on how they finance the project and how constraints are applied. Approved projects are, however, eligible to have at least their cash requirements covered, even if the area is overbedded. Purchases of major movable equipment are not explicitly constrained by utilization rates. If hospitals can raise funds to purchase complex technologies, a price-level depreciation schedule is established to assure a full replacement fund independent of demonstrated needs.

Another weakness is that, by paying cash requirements, including debt principal plus interest, Maryland is also quite dependent on the State bonding authority to keep the scope and cost of borrowing within limits. Finally, negotiation is still an important part of the system. While this is not always a weakness and could be considered a strength on the grounds of flexibility, it involves a significant additional administrative burden that could be inappropriate in a national program.

New Jersey. The defining characteristic of the New Jersey hospital rate-setting system is its reliance on reimbursement by case based on 467 Diagnosis Related Groups (DRGs). Under the New Jersey program, payers are required to provide a set fee for a given diagnosis independent of the patient's length of stay or intensity of resource use. Medicare's prospective payment and New Jersey share certain fundamental characteristics. However, they also differ in significant ways.

The payments in New Jersey are adjusted each year to cover direct and indirect patient care, paid taxes excluding income taxes, education, research and training programs, indigent care, bad debt, and replacement/improvement of capital facilities. The direct rate portion of the DRG rate is actually a weighted average of a hospital-specific and a statewide figure. Many of these factors are not included in the current Medicare system.

New Jersey's capital payment is divided into two major categories, as in Maryland. Movable equipment is classified as a direct cost and thus is allocated across DRGs. In addition, if equipment is financed with debt, the hospital may petition to have associated interest expenses included in their preliminary cost base. In short, the New Jersey system provides for comprehensive treatment of equipment expense. Three restraints on a hospital's ability to acquire major movable equipment exist. First, if the prospective purchase is sufficiently expensive, it must have certificate-of-need approval. Second, all hospitals are subject to periodic screens or audits if costs exceed the industry-wide average. Finally, the allocation to DRGs provides the same incentives as DRG-based payment for operating expenses to hold down variable costs. An efficient hospital that enjoys DRG "profits," however, has some leeway in acquiring major medical equipment in excess of what is necessary or optimal.

The second major category of capital expense is building and fixed equipment, for which New Jersey provides a hospital-specific capital facility allowance in one of two ways. Under the first option the hospital is reimbursed for its straight-line, historical depreciation and interest expense. Under the second option, the hospital receives its debt service, or cash requirements, plus an annualized allowance towards a 20 percent downpayment on a replacement facility. As in Maryland, this replacement allowance is calculated based on a target size for the facility and a fixed resource cost per bed. However, it is paid in addition to rather than instead of cash requirements. Thus either option -- depreciation and interest or cash requirements plus the replacement allowance -- is more generous than Maryland's treatment of building and fixed capital. Moreover, there is a strong incentive to choose the second option. New Jersey requires that 50 percent of the replacement allowance be put into a hospital's internal fund balance. But, since cash requirements are really taken care of, the other 50 percent can be used as the hospital pleases and effectively represents a subsidy to its annual operations.

Two final categories of capital reimbursement, return on equity and working capital, warrant brief mention. For-profit institutions are allowed a return on their equity capital equal to the rate formerly employed by Medicare, i.e., 150 percent of the Trust Fund interest rate (Medicare now pays 100 percent of this rate). New Jersey also allows a 5 percent add-on for working capital which may be returned to the payer depending on



promptness of payment. This level is high in relation to that paid by other States.

In New Jersey the movable equipment portion of the capital payment averages 3.5 percent of operating costs. The building and fixed equipment portion is regarded as exceedingly generous, averaging 6.5 to 7 percent of operating costs. It is limited to 13 percent of total costs -- a high limit for building and fixed capital alone. The limit affects only one in twenty hospitals.

On average, total capital-related costs under New Jersey's system, excluding working capital, amount to 11.5 percent of the operating costs. The overall effect of this relatively high level is to increase the likelihood of overcapitalization and, because of the opportunity for using the replacement allowance as a subsidy, create perverse incentives on the operating side as well. Given the payment of at least debt service plus a relatively high replacement allowance, the system depends heavily on a stringent certificate-of-need process. To date, denial rates have been very low.

New York. New York's formulistic rate-setting system is one of the oldest in the country. Established in 1971, it has gone through many revisions and expansions. Originally, the system covered only Medicaid and Blue Cross patients. By 1976, however, its very stringent methods were resulting in excessive "discounts" to these payers, so the program was expanded to charge payers as well. Finally, in 1983, Medicare was brought into the system, giving the State complete payer coverage. (New York joined the Medicare prospective payment system January 1986).

The New York system uses 1981 costs as a base, trending them forward. Several add-ons, for charity, financial distress, and transition costs, have been incorporated into the rate, to be distributed on a regional basis to needy hospitals. Several factors in the way operating costs are paid may affect investment decisions. For example, hospitals face severe penalties for low occupancy rates. This discourages unnecessary expansion or replacement. Adjusting fixed-variable cost ratios for volume changes guarantees coverage of fixed costs while not overpaying for capital with rising utilization. Disallowances for routine and ancillary costs exclude direct capital costs, thereby encouraging hospitals to substitute capital for labor and improve productivity.

As for actual payment of capital, until 1984 New York reimbursed such costs retrospectively, in a manner very similar to Medicare. Payment was provided for historical depreciation, interest, and, for investor-owned hospitals, return on equity. One difference was that the return was based on national rates of return in similar industries rather than being linked to volatile interest rates. Another difference was that capital payments were decreased for low occupancy rates. A third difference was

that all costs associated with certificate-of-need approved projects are held to the lesser of actual or approved construction costs. Thus hospitals which overran their estimated project costs had only the approved depreciation reimbursed.

In 1984, New York went to forward budgeting of capital in order to improve cash flow and reduce appeals. Hospitals are now asked to submit expected capital budgets for two years in advance. These will be included in the prospective rate, and actual costs will be reconciled on audit to avoid payment for non-incurred capital investment. A 2 percent per month working capital add-on to individual bills for delayed payment is allowed. Unlike Maryland or New Jersey, all capital payments are still hospital specific. The components of capital cost and the way in which they are valued have changed little from the former method, which paid for historical depreciation and interest.

Thus one weakness of New York's capital payment system is that, as under current Medicare policy, the payment of depreciation rather than debt service provides an incentive to replace assets early and to enjoy depreciation reimbursement in excess of debt principal payments. Also, payment of interest encourages debt financing. Despite indirect pressures from stringent control of operating costs, the system is dependent on the rigor of the certificate-of-need process to regulate capital replacement and expansion directly. Finally, under the new capital budget system, hospitals have a strong incentive to "game" the system by inflating expected asset replacement and expansion. Many submitted budgets were far greater than historical asset bases, even though hospitals knew their actual capital costs would be retrospectively audited. New York has issued more specific budget guidelines and it is too early to tell whether the problem is temporary or longer term.

Two sub-areas of New York State have separate Medicare waivers. Their programs are run by groups of hospitals organized into corporations in Rochester and in the neighboring Finger Lakes region. The Rochester hospitals are considerably larger than those in the Finger Lakes.

Both systems treat capital in essentially the same way. Buildings and fixed equipment are paid according to Medicare's methodology, with a hospital's allowable cost base increased for certificate-of-need approved depreciation and interest. Depreciation and interest on capital expenditures in amounts below the certificate-of-need threshold, however, are not added to the base until the year after the project. The total cost of equipment and the non-capital expenses associated with certificate-of-need projects can add no more than 1 percent per year to the base. The base includes 2 percent per year above inflation, of which 1 percent is earmarked for volume for

CON-related costs. This 1 percent is treated as a pooled fund, that is, not available to each hospital but supplied in the aggregate and distributed to the hospitals in the system according to planning approvals and corporate decisions. New equipment is paid according to replacement cost depreciation (less what is in the base) through the contingency fund for one year then added to the base.

At the end of the program, the Rochester corporation splits the remainder of the contingency fund evenly with the participating payers (Medicare, Medicaid, Blue Cross). The Finger Lakes corporation has a second option, if it is found to have substantially achieved the restructuring called for in the State health plan, to retain all the funds.

Except for the general principle of decision making by the affected hospitals and the disposition of the contingency fund, these systems have not substantially altered the incentives associated with building and fixed equipment. The Rochester corporation has designed a proposal for payment of replacement costs for all capital. The trustees who run the Rochester corporation have expressed concern that the current capital payment system for buildings and equipment does not contain incentives for efficiency.

Massachusetts. Under a system introduced in FY 1983 and operating until the end of FY 1985, hospitals in Massachusetts were reimbursed using a uniform methodology for all payers: Blue Cross, commercial insurers and other charge payers, Medicare and Medicaid. Under this system, all payers but Medicare are reimbursed according to the prospective payment scheme contained in the current Blue Cross contract. Each payer provides a proportion of the overall statewide ceiling on hospital revenue based on a prospective formula for each hospital. By tying all payers to a uniform base -- the Blue Cross Maximum Allowable Charge (MAC) -- the system no longer asks charge payers to assume a disproportionate share of free care and bad debt. (Massachusetts joined the Medicare prospective payment system beginning October, 1985).

The Massachusetts system also includes a cumulative 7.5 percent "productivity factor" reduction in the basis of payment by FY 1988, in order to eliminate inefficiencies resulting from the previous cost-based reimbursement system. First an overall cap on hospital revenue is determined statewide, defined as the sum of projected allowable revenues for all hospitals in the State. This is determined by adjusting all hospitals' net revenue for the base year to account for general inflation, volume changes, productivity gains, and for costs beyond the control of providers. The inflation adjustment is made through the use of

an index. The productivity factor represents a 1.25 percent average annual reduction in the allowable revenue cap. Adjustments for cost beyond the control of the provider include a broad range of factors, such as volume increases due to certificate-of-need approved projects, regulatory mandates, JCAH requirements and wage parity agreements.

In a similar way, the revenue cap for each facility is determined prospectively through adjustments to the hospital's net revenue defined as the weighted average basis of payment for all payers. The distribution of the revenue cap among payers is determined according to their share of total charges in the base year in order to preclude cost shifting. If actual charges fall short of the revenue cap, the hospital is entitled to keep the difference.

The basis of payment for each payer is then derived from adjustments to its share for the revenue cap. This includes bad debt, free care and the addition of capital costs for certificate-of-need approved projects. Unlike the definitions of the MAC components, the definitions of capital cost may vary according to payer. Blue Cross pays for depreciation on a price-level basis, applying a regional index of capital costs to existing gross plant assets. Other payers calculate depreciation on a historical basis. All payers recognize interest at cost.

Conspicuous by their absence are restrictions on the capital components. The decision was made to reimburse interest and depreciation, which account for only 5 percent of hospital revenue in Massachusetts, at cost, pending a method for allocating expenditures of funds for replacement of capital. At present continuing to reimburse for depreciation and interest perpetuates the perverse incentives and distributional problems of the current Medicare system. As with New York, Massachusetts is dependent on planning to contain capital spending. There are presently \$220 million in proposals pending certificate-of-need approval with associated annual operating costs of \$60 million. The State is considering a cap on these, but that would still leave capital, which can be a major contributor to increased operating costs, outside the control of the payment system.

Conclusions. None of the States with their own rate-setting programs has completely departed from hospital-specific methods of paying for capital. New York and Massachusetts value capital much in the way Medicare does under current policy. Maryland and New Jersey use a per-bed or per-DRG formula for some or all movable equipment but pay for building and fixed equipment according to individual hospital costs, using both replacement allowances and pass throughs. These State programs are administratively complex, require a more detailed review of hospital budgets and volume changes, and rely on planning and regulation to constrain overall expenditures. Such features pose administrative and conceptual problems for a national program such as Medicare. The States have not tried unified, average

prospective rates for capital costs. In most instances, such an approach would not be entirely consistent with the basic design of the rate-setting methodology. In summary, therefore, none of the State rate-setting programs, including New Jersey, provide a useful model to guide the development of an approach for incorporating capital into the Medicare prospective payment system.



## CHAPTER V

### MEDICARE CAPITAL PAYMENT OPTIONS

The Medicare prospective payment system is sufficiently flexible to accommodate payment for hospital capital costs under a variety of methods. Some approaches would continue to pay for capital independently of the basic DRG payment methodology through cost reimbursement or by other mechanisms, while others would incorporate payment for capital directly into the prospective payment system. The latter alternatives require decisions regarding the basic payment mechanism, the level and distribution of payments, and the structure of a transition period, if any. Table V-1 displays these alternative approaches.

This chapter describes the major mechanisms that were considered for the design of a new capital payment system, but focuses primarily on the two principal methods: a hospital-specific cost-based method and an average-rate method. Other payment systems could be designed, such as combinations of the cost-based and average-rate methods or a capital fund or allocation method. These other methods, however, involve certain complications that make them less desirable for the purpose of Medicare payments, and they are therefore discussed only briefly.

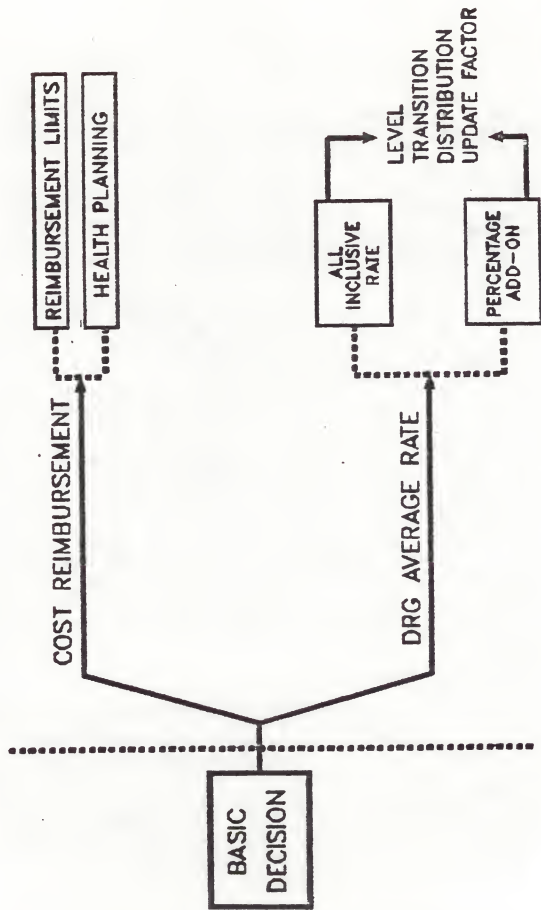
We assessed the strengths and weaknesses of each mechanism with particular attention given to its consistency with the overall design and goals of the Medicare prospective payment system. Accompanying each description of an option is a discussion section that assesses the option in terms of its desirability and compatibility with the prospective payment system. The chapter includes data prepared using the hospital investment simulation model (HISM) (see Appendix A for a description of the HISM) developed by ICF, Inc. This is followed by the final chapter of the report, which contains our recommendation on how to incorporate capital payments into the prospective payment system.

#### COST-BASED PAYMENT METHODS

These approaches assume continued reimbursement for depreciation and interest expense on a cost basis relying upon reasonable cost principles of reimbursement as set forth in 42 CFR Subpart D, but potentially modified by either reimbursement or health planning limits. Two variations on the cost pass-through are considered here: the current policy with a mandatory Section 1122 program and the current policy subject to section 223-type (peer group) reimbursement limits. Before discussing any of these variations, however, there are fundamental aspects of cost reimbursement for capital that are common to and underlie each of these options and which must be understood.



# OPTIONS FOR CAPITAL PAYMENT



Cost reimbursement for capital contains many of the undesirable elements that cost reimbursement for operating expenses did and that originally prompted the creation of the prospective payment system. These problems relate primarily to undesirable incentives that encourage excessive spending on capital and result in maldistribution of Medicare payments for capital.

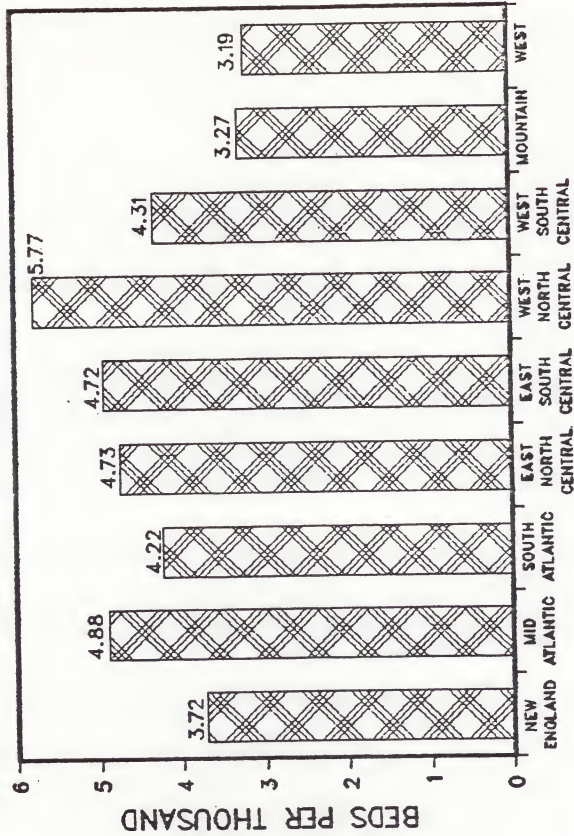
Under cost reimbursement, the Medicare program basically reimburses a hospital its actual incurred costs of capital investment without regard to whether that investment (a) is necessary, (b) contributes appropriately to efficiency of operation, or (c) was financed in an optimal manner. Payment amounts to individual hospitals are directly related to a hospital's rate of and spending levels for capital investment. As a hospital's spending level on capital increases, so does its Medicare capital-related payments, assuming constant Medicare occupancy. Cost reimbursement does not foster prudent hospital capital investment behavior.

The Department has estimated the national cost to Medicare of all unoccupied U.S. hospital beds, based on some work by Mark Pauly. The annual cost in 1985 of all unoccupied hospital beds, projected for the AHA panel of community hospitals was \$8.4 billion nationally, of which \$3.4 billion is the cost to Medicare. These estimates are on a national average occupancy level of 65.3 percent. The estimates would be lowered by factoring in necessary stand-by capacity based on normative judgments about optimal occupancy levels. Refer to Table V-2 for information on the variation in hospital beds per capita by census region.

The current split of DRG payments for operating expenses and cost reimbursement for capital creates a positive incentive for hospitals to substitute capital for labor, perhaps inappropriately from an efficiency standpoint. While hospital decisions to invest in capital rather than labor may be appropriate in some instances, the Medicare payment system should be revenue-neutral with respect to such decisions and not foster one category of input over another.

This incentive to invest in capital is influenced under PPS by two factors, one permanent and the other temporary. The gradual phase-in of national PPS rates for operating costs has put pressure on hospitals to be more prudent about all costs, including capital. This is especially true with respect to capital investments that have cost-increasing implications on the operating side. This could continue to some degree even if capital reimbursement continues on a cost-based method. However, the manner in which Medicare's total share of a hospital's fixed costs is calculated under cost reimbursement is so advantageous

## BEDS PER THOUSAND BY CENSUS REGION



CENSUS REGIONS

to the hospital that it dilutes the cost containment incentives of the DRG payments with respect to capital investment. (This point is discussed at greater length under the following section on cost reimbursement modified by health planning.) Hospitals may have been induced temporarily to be more cautious regarding capital expenditures by the uncertainty created by Congressional language contained in the Social Security Amendments of 1983 about the future treatment of capital after April 1983. Indications are that this temporary restraint would lose its effectiveness if cost-based reimbursement for capital were permitted to continue beyond October 1986.

Separately, not all hospitals have equal access to capital markets and thus not all hospitals have the same opportunity to improve their physical plant and to purchase new equipment. For example, hospitals with accumulated equity capital and those with positive operating margins, among other factors, have greater access to the capital markets. These hospitals are paying service costs on the largest amount of capital financing debt and consequently receive higher Medicare capital payments. These higher payments further reinforce their ability to obtain future capital financing. Hospitals, such as rural and urban public facilities, that are not in a financial position to make the capital investments needed to acquire equipment and renovate physical plants receive correspondingly lower Medicare payments that are insufficient to improve their overall capital investment ability.

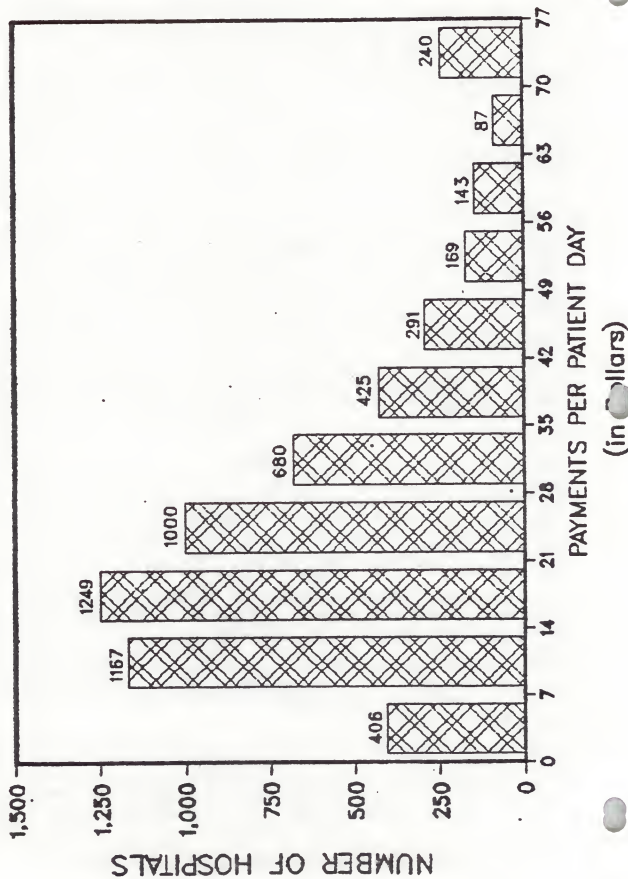
Table V-3 displays the variation in capital payments among hospitals. It is estimated that about two-thirds of the hospitals in the nation would receive less than the \$31 per-day average capital payment in 1985 and would benefit from receiving averaged capital payments under PPS. A number of hospitals are currently receiving large capital payments because of recent large investments, refinancing activity and/or low occupancy.

Table V-4 shows the variation in capital payments by type of hospital. A hospital may be in several of the categories so that the percentages sum to over 100 percent. Obviously the 373 high capital hospitals (hospitals with capital to total inpatient cost ratios of over 14 percent in 1984) will receive the largest relative payments in 1985 under current law. Other groups currently receiving high capital payments include the large urban teaching and religious hospitals.

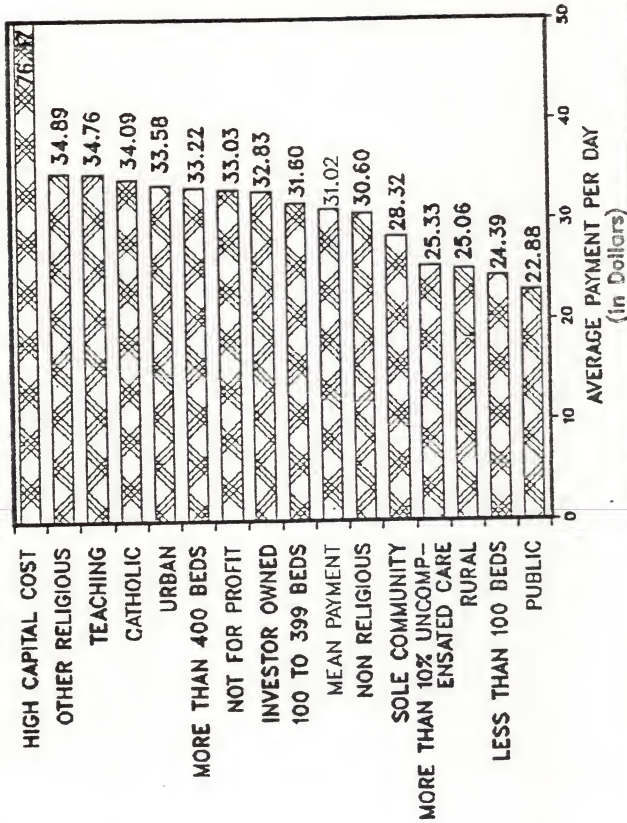
Small rural hospitals (a number of which are sole community hospitals), public hospitals and hospitals serving large numbers of poor patients are currently receiving low capital payments. Medium-sized non-religious hospitals are about average in capital payments under current law. These distributions are broadly indicative of how general categories of hospitals would fare relative to average capital payments. However, in assessing the significance of any impact, one should also consider the

Table V-3

## DISTRIBUTION OF MEDICARE CAPITAL PAYMENTS



# AVERAGE PAYMENTS PER DAY (All Hospitals)





magnitude of Medicare volume for those same categories. For instance, one category could receive high average Medicare capital payments per day, but in fact have relatively low Medicare patient days producing low aggregate payments.

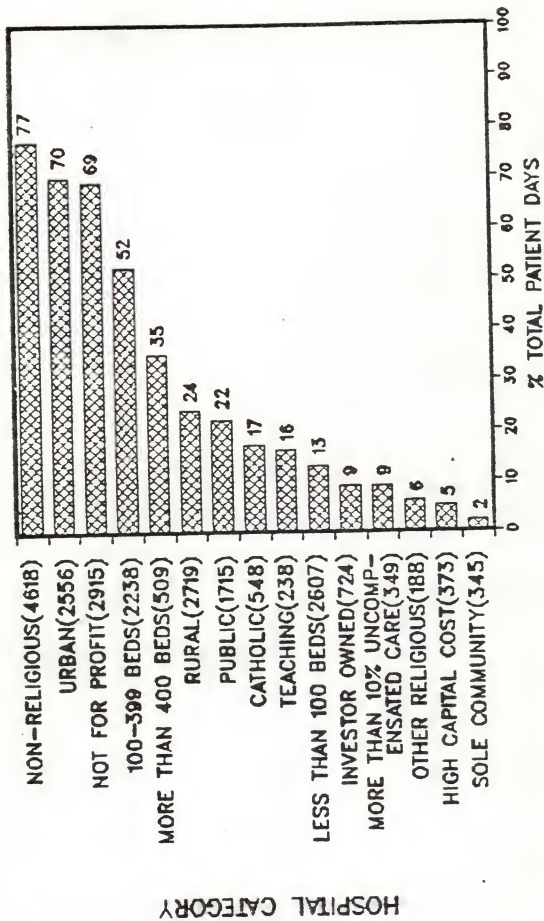
Although the cost-based method could be continued without either health planning or reimbursement limits, the spending incentives and distributive effects of doing so are undesirable. Therefore, although it is unclear how much health planning has contained extraneous capital investment, it is assumed that, at the very least, either or both health planning or reimbursement limits would be required in order to moderate the perverse investment incentives associated with purely cost-based payments. These control mechanisms are discussed in the next two sections.

Cost Reimbursement With Health Planning. This policy assumes continued reimbursement for depreciation and interest on a reasonable cost basis. Payment of a return on equity for investor-owned hospitals could either be continued or eliminated. The National Council on Health Planning and Development is the only group that has formally proposed retention of current policy. It is, however, the expressed preference of some institutions, at least for an indefinite period, and it provides a base against which other mechanisms can be assessed.

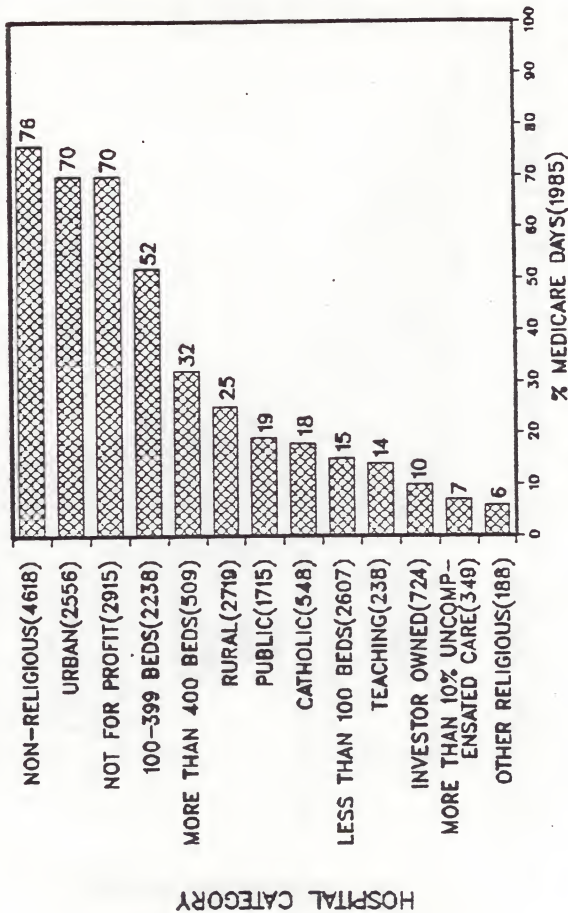
Discussion of Cost-Based Payments with Health Planning. An important aspect of the current policy is that the Medicare program pays a proportionate share of a hospital's total capital costs attributable to inpatient care, based on Medicare inpatient days to total days. Thus the Medicare program subsidizes any excess or unused capacity since it shares in the hospital's total fixed costs, even if the hospital is greatly underutilized. The cost to Medicare of excess capacity, as discussed above, is substantial. It is this element of cost reimbursement that strongly offsets any cost containment incentives for capital of the DRG-based operating payments. This policy buffers a hospital from the negative financial effects of poor planning or management. Also, if the hospital is in a competitive area but competes poorly, it is insulated from the effects of a declining or relatively low market share. In effect, under cost reimbursement Medicare capital payments are only partially related to a hospital's actual Medicare volume and case-mix. Under this system, a hospital has little incentive to increase its volume of Medicare patients.

Tables V-5, 6, 7, and 8 illustrate the distribution of total patient days and Medicare patient days for all hospitals, high-capital-cost hospitals, and sole community providers. Table V-5 shows the distribution of all patient days (Medicare and non-Medicare) for hospital groupings similar to the ones shown earlier. The percentages sum to more than 100 percent because a hospital may be represented in more than one category. For example, a non-religious hospital may also be an urban hospital

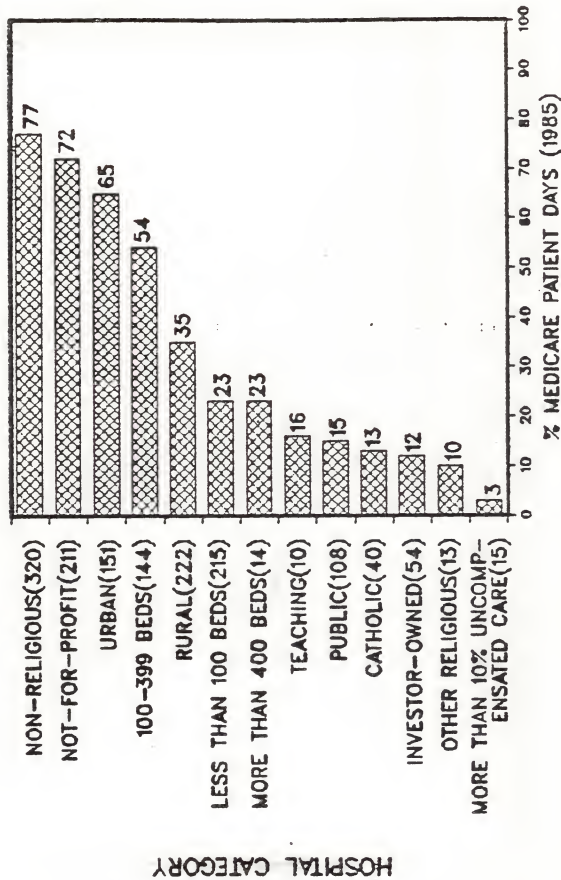
# DISTRIBUTION OF TOTAL PATIENT DAYS



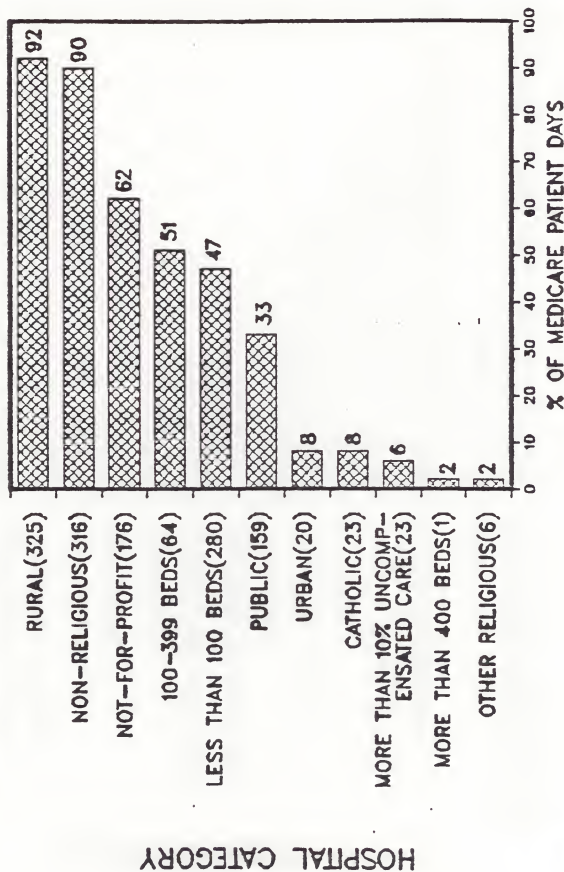
# DISTRIBUTION OF MEDICARE PATIENT DAYS (All Hospitals)



# DISTRIBUTION OF MEDICARE PATIENT DAYS (High Capital)



# **DISTRIBUTION OF MEDICARE PATIENT DAYS (Sole Community Hospitals)**



or a not-for-profit hospital. The three categories of hospitals with the highest capital costs per day provide the lowest number of total days. This may explain in part why their capital costs per day are so large--their number of days is very small. Most importantly, hospitals with capital payments per day nearer the national average are providing the bulk of the nation's care and also are treating most of the Medicare patients.

Table V-6 reveals the similarity in the distribution of Medicare patient days to that for all patient days. The same hospitals that are providing the bulk of the total days are also providing the bulk of the Medicare days. Table V-7 shows that the distribution of Medicare days in the 373 high capital hospitals is much the same as that in all hospitals. Obviously the nonreligious, nonprofit, urban hospitals provide most of the patient days in these high-capital hospitals.

Table V-8 shows the distribution of Medicare days in the 345 sole-community-provider hospitals. Since these are almost entirely small or medium-sized rural, nonreligious, nonprofit hospitals, it is not surprising that these five overlapping categories provide most of the Medicare patient days in sole community hospitals.

As noted earlier, cost reimbursement provides little financial incentive for hospital managers to minimize the cost of new investment by (a) selecting an appropriate financial mix of internal equity and debt financing, (b) considering market timing (interest rate levels), or (c) controlling the underlying cost of the investment. Other undesirable consequences of cost-based reimbursement include an incentive to refinance debt when the "crossover" point in the repayment schedule occurs. This is done in order to improve cash flow when principal payments on the debt exceed reimbursement received for depreciation. Cost reimbursement for interest expense insulates the hospital from the costs of refinancing and the cost-based payer potentially absorbs a greater aggregate interest expense due simply to the refinancing without any change in the underlying value of the investment.

Health planning programs such as certificate-of-need review or Section 1122 reimbursement sanctions have not been demonstrably effective in counteracting these powerful financial incentives. It is ineffective and intrusive for regulatory bodies to attempt to pit their judgments against those of hospital managers with respect to the overall necessity and appropriateness of specific expenditures. Of necessity, only the most obviously inappropriate expenditures are likely to be prevented or curtailed. Health planning is unlikely ever to be as effective in inducing desirable cost-conscious behavior as would the careful restructuring of the payment system of a major payer, such as Medicare.



Cost-Based Method With 223-Type Limits. The Social Security Act (Sections 1861(v)(1)(A), (v)(7)(B) and 1886(a)) sets forth general rules under which limits may be established on provider operating costs recognized as reasonable in determining program payments. The underlying principle is that reimbursable cost should not exceed the costs estimated to be necessary for the efficient delivery of needed health services. Under this authority, cost limits may be established on direct or indirect costs, for costs of specific items or services, or groups of items or services.

These cost limits are referred to as "Section 223" limits due to the original statutory authority having been framed in Section 223 of the Social Security Amendments of 1972. Under that authority, limits on hospital inpatient routine per diem costs were published annually from 1974 to 1981. The Tax Equity and Fiscal Responsibility Act of 1982 added two provisions that limited Medicare reimbursement for costs of inpatient hospital services. Section 1886(a) of the Act provided for the extension of the Section 223 hospital cost limits, which had previously been applied only to inpatient routine operating costs, to the total operating costs of inpatient hospital services. The expanded limits were to apply on a per-discharge or per-admission basis, and were to take into account the particular mix of Medicare cases treated by the hospital. Section 1886(b) of the Act provided for a new three-year limitation on payment for hospital costs in addition to the Section 223 limits. This provision required that Medicare limit the allowable rate of increase in a hospital's inpatient operating cost per case through reductions in the reimbursement to hospitals that incur costs greater than the target amount. This provided an incentive for hospitals to keep their costs below the target amount.

On September 30, 1982, the Department published in the Federal Register (47 FR 43296 and 47 FR 43282) an interim final notice and an interim rule that implemented these new 223 limits and the limit on rates of increase over time. These notices provide a more detailed explanation of the cost limit provisions and describe their implementation.

Application of Section 223-type cost limits to the current capital payment method was mentioned as an option to be considered in the House of Representative's Ways and Means Committee Report accompanying the Social Security Amendments of 1983. Under this approach, hospitals could be sorted into peer groups according to variables such as geographic location and bed-size, and a maximum payment limit on hospital-specific capital reimbursement could be set at some percent of the mean capital cost for each group. The capital costs of each hospital used for calculating the group limit would be defined through reasonable cost principles. This approach would have the effect of limiting capital payments to hospitals with especially high capital costs. If the limits were not too stringent, a range of payment levels would still be available to individual hospitals

below the limit and payments would not be frozen relative to a high or low point in hospitals' cycles.

Discussion of Cost-Based Payments With Limits. As described earlier, the Section 223 cost limit methodology as applied to operating costs is based on the concept that costs greatly in excess of the norms of a hospital's peer group can be judged to be excessive and unnecessary in the efficient delivery of health services. For instance, since inpatient hospital care is labor intensive, a hospital that has staffing levels considerably higher than other hospitals of similar size, range of services, patient volume and case mix would potentially generate excess costs relative to its peers, a portion of which would be disallowed under cost limits. Such excess costs are deemed not to be necessary to the efficient provision of needed health services.

This concept is problematic when applied to capital costs but not impossible to implement. Capital costs can vary tremendously over time for a particular hospital, depending on its overall average level of investment in capital or on whether it has recently undertaken a major investment. High capital costs in any given period may simply reflect a recent major investment and bear no relation to whether or not the hospital is operated efficiently. As with our proposal to fold capital into the prospective payment, this problem can be minimized with a transition period that would gradually phase down payment for current obligations.

There are problems associated with determining an appropriate basic unit around which capital costs should be calculated and reimbursement limits imposed (i.e., per case, per bed, or per bed adjusted to a target occupancy level). There are administrative and equity problems related to both prospectively and retroactively applied cost limits.

Any Section 223 limit approach would also involve continuation of a cost reporting system to provide the data base upon which cost limits can be developed and applied. Retroactively applied limits, however, present administrative problems due to differing fiscal years of hospitals and lags in cost report receipt and settlement by intermediaries. Prospectively established limits are easier to administer but may require exception provisions related to new hospitals, or to efficiently operated hospitals incurring high but "reasonable" capital costs.

#### AVERAGE-RATE METHOD OF PAYMENT

Given the basic design of the prospective payment system, any approach that incorporates payment for capital into the system, by definition, entails averaging. There are two general mechanisms for implementing an average payment method: a uniform percent add-on and an all-inclusive rate. First, it is helpful to break the prospective payment system into its various

components in order to analyze and describe the factors that must be addressed when incorporating payments for capital. A synopsis of the basic design of the prospective payment system follows.

Under the prospective payment system, hospitals are paid on a per-discharge basis for the operating costs of inpatient hospital services. Inpatient operating costs subject to prospective payment include routine operating costs, ancillary costs, special care unit costs and malpractice expense. In contrast, excluded from the prospective payment rate and still paid on a reasonable cost basis are costs related to direct medical education, outpatient services, direct medical and surgical services of physicians in teaching hospitals, kidney acquisition, and capital-related expenses.

In general terms, the determination of the payment per discharge is based on two major components, DRG weights and a schedule of standardized payment amounts. The DRG weights reflect the relative cost-intensity of each of the 471 DRGs. The standardized amount is an average payment per Medicare discharge derived from hospital costs reported on Medicare cost reports adjusted by:

- o Removing costs excluded under prospective payment;
- o Updating operating costs for inflation;
- o Standardizing to remove the effects of varying area wage levels, teaching status, and hospital case mix;
- o Aggregating and averaging the standardized cost per case for the region or the nation; and
- o Making various adjustments as otherwise required by law.

The prospective payment system was designed to provide uniform Medicare payment levels, by type of medical case, for all hospitals based on national rates, differentiated only by area wage index levels and urban or rural location. In recognition of the problems that some hospitals would have in adapting to the immediate implementation of national rates, the Congress enacted a three-year transition period. Under this transition, a hospital's payment rate in the first year of the transition was based on a blend of its own historical cost as reflected by a hospital-specific portion of the rate, and the Federal rate which was derived from the regional urban or rural standardized amounts. In the subsequent two years of the transition, this payment rate reflected a decreasing hospital-specific portion, blended with a combination of regional and national standardized DRG rates. Effective October 1986, the Federal rates will be entirely national. Following is a summary of the transition schedule.

COST REPORTING  
PERIOD BEGINNING  
ON OR AFTER

HOSPITAL-SPECIFIC  
PORTION PERCENTAGE

FEDERAL  
PORTION  
PERCENTAGE

October 1, 1983 (FY 1984)	75	25
October 1, 1984 (FY 1985)	50	50
October 1, 1985 (FY 1986)	25	75
October 1, 1986 (FY 1987)		100

FEDERAL FISCAL YEAR  
BEGINNING

FEDERAL COMBINED RATE  
REGIONAL NATIONAL  
PERCENTAGE PERCENTAGE

October 1, 1983 (FY 1984)	100	
October 1, 1984 (FY 1985)	75	25
October 1, 1985 (FY 1986)	50	50
October 1, 1986 (FY 1987)		100

By law, all hospitals will be paid only a national standardized amount for inpatient operating costs for hospital fiscal years beginning on or after October 1, 1986. The only adjustment to this amount would be the wage index, which would affect only the labor-related portions of the national rate, based on whether the hospital is in an urban or rural area.

For FY 1987, two national standardized amounts will be separately calculated according to a hospital's location in an urban or a rural area. In addition, the standardized amounts are separated into labor-related and nonlabor-related components. The labor-related portion is multiplied by an area wage index to adjust for local market variations in wages. The following diagram illustrates the operating cost payment calculation process for a hospital in FY 1987.

Urban/Rural  
STANDARDIZED x DRG = HOSPITAL  
AMOUNT WEIGHT PAYMENT

[Labor  
x  
Wage  
Index] + Nonlabor

For ease in discussing how capital could be incorporated into the prospective payment system we will refer repeatedly to certain basic descriptive terms: mechanism, level, and distribution. The term "mechanism" refers to the conceptual approach or overall system design for incorporating capital. The term "level" refers to the standardized amounts which are the average dollar amounts per case with which a DRG weight is multiplied to obtain actual reimbursement for a specific discharge. In subsequent discussions on level, therefore, we are referring to the average per-case amounts for capital to be added to the operating

payments. The term "distribution" refers to the DRG weights, which collectively represent relative, average resources used by hospitals across different DRGs in providing inpatient care. Each individual DRG weight represents average resources or inputs utilized across all cases within that DRG. Just as average operating inputs vary in intensity across DRGs, so do capital inputs.

Discussion of Average-Rate Method. Incorporating capital into the DRG-based payments unifies the reimbursement system and leaves it revenue-neutral with respect to decisions by hospital managers on whether to employ operating or capital inputs in providing care. Because there would be no explicit recognition of hospital-specific interest expense, the payment system would be neutral with respect to the choice of equity or debt financing for capital investment. A unified payment also would encourage hospitals to make capital investment decisions which are more sensitive to market conditions. This would encourage hospital managers to defer new construction when interest rates are high, substitute renovation or modernization, and carefully evaluate the cost-effectiveness of facilities and equipment.

Incorporating capital into DRG-based payments would break the link that currently relates Medicare revenues for capital to the value of a hospital's current capital assets. That is, high rates of investment in capital (i.e., a high asset base) generates high capital-related revenues, while a low capital asset base generates low cost-based revenues. The latter is a problem particularly for chronically undercapitalized hospitals such as large, urban public hospitals with old and deteriorating physical plants. Cost reimbursement from Medicare or other payers does not generate revenues sufficient to permit such hospitals to improve their capital stock unless supplemented by other revenue sources. The most important aspect of incorporating capital into DRG-based payments could be that Medicare payments would be linked to Medicare volume and case-mix rather than to a hospital's total fixed costs, which may be excessive (due to either spending levels or unused capacity, or both).

The percentage add-on and all-inclusive rate mechanisms share these advantages, and either would be a marked improvement over the current cost-based system with or without controls. However, there is an important difference between the two methods. The percent add-on method would perpetuate the current practice of distinguishing between Medicare capital and Medicare operating payments, whereas the all-inclusive rate method would eliminate the distinction by creating an all-inclusive prospective rate that would provide hospitals a total revenue amount for treating Medicare beneficiaries that does not distinguish between capital and operating payments.

Both mechanisms require a transition period to ease the impact on hospitals that are currently highly leveraged with respect



to capital investment into the average payment rate system. This transition would be similar to the one currently used to implement PPS but should be longer because hospitals are less able to respond quickly to significant changes in payments for capital due to the sizable, longer-term and relatively fixed aspects of the costs involved.

Percentage Add-On Method. The uniform percentage add-on mechanism means that an identifiable and explicit average percentage level is established for capital and incorporated into the standardized amounts. Under the uniform percentage mechanism, an average "target level" for capital could be based on explicit decisions regarding which components of capital costs should continue to be reimbursed under the Medicare program. As a departure point for discussion purposes, each target level can be evaluated relative to the estimated national average level of Medicare payments for capital in 1981, which is the base period for the Federal portion of current PPS operating cost payments. Expressed as a ratio of capital costs to total inpatient costs, that average level was estimated to be 7.39 percent. For illustrative purposes, other sample target levels are:

- o 12.8 Percent: Estimated level derived by including depreciation, interest and return on equity for all hospitals.
- o 7.15 Percent: Estimated level for 1985 excluding return on equity payments, derived from the HISM.
- o 6.89 Percent: Estimated level derived using the 1981 Medicare capital to total inpatient cost ratio, and excluding return on equity payments to investor-owned hospitals.
- o 5.14 Percent: Estimated level corresponding to average payments in 1985 for depreciation expense only.

All-Inclusive Rate Payment Method. This method differs from the uniform percentage mechanism in that it does not explicitly distinguish capital from operating costs in order to derive a specific level for capital payments. Rather, a total average cost per case, inclusive of capital, would be developed and would become the foundation for a new schedule of standardized amounts. The average level for capital would be an implicit amount derived from the actual average payment to hospitals for capital costs reimbursed by the Medicare program during the base period.

Any adjustments to the average level for capital would be accomplished by specific adjustments to hospitals' base period capital costs, as reported on the Medicare cost reports, prior to using those costs in developing standardized amounts. All hospitals' total cost-per-case amounts derived from their Medicare cost reports would be used to develop the national urban and rural standardized amounts. Thus, the implicit level for

capital under this mechanism represents average Medicare spending for capital in the base period, unless specific steps are taken in the form of underlying cost report adjustments that would affect the average level.

The all-inclusive-rate mechanism would function as depicted in the following diagram:

$$\begin{array}{c} \boxed{\begin{array}{c} \text{Urban/rural} \\ \text{STANDARDIZED} \\ \text{AMOUNT} \\ + \\ \text{PROSPECTIVE} \\ \text{CAPITAL RATE} \end{array}} \times \text{DRG} \text{ WEIGHT} = \text{HOSPITAL} \\ \text{PAYMENT} \end{array}$$

Actual payments to hospitals are determined by multiplying the standardized amounts by weights appropriate to each type of discharge. These weights represent the average, relative value of resources, across all hospitals, of treating cases classified in each DRG. The original set of DRG weights reflected only relative operating costs, excluding items such as capital, medical education, and kidney acquisition costs. Effective fiscal year 1986, the original operating cost weights were converted to charge-based weights, recalibrated, and include relative amounts for capital across the DRGs. This, in effect, resolves the decision on incorporating capital into the DRG weights because it has already been done as a byproduct of this methodological change.

Discussion of the All-Inclusive Method. As described earlier, both the percentage add-on and all-inclusive rate payment methods share the advantages of incorporating payments for capital into the DRG system. However, the all-inclusive rate has the unique and desirable attribute of fully integrating the Medicare prospective payments by eliminating the distinction between payments for capital versus operating costs. A fully integrated prospective payment approach would entail (a) standardized payment amounts that include operating and capital costs, (b) DRG weights that reflect relative capital and operating intensity across the DRGs, and (c) a modified hospital market basket index that includes a capital component.

Alternatively, the percent add-on continues to identify separate payment amounts for capital. There is no reason to perpetuate such a distinction. From a hospital standpoint, the most important factor is aggregate Medicare patient care revenues and the associated operating margin. From a Medicare program standpoint, it is preferable to focus on the reasonableness of the overall Medicare payments, without distinguishing among components of cost that are common to all hospitals.

Construction of a Transition Period. As was mentioned earlier, any change to the current cost-based payment system for capital would necessitate a transition period in order to permit

hospitals to adapt to any changes in cash-flow due to the revised capital payment policy. This is consistent with the Congressional decision to phase in the current national prospective rate for operating expenses over a three-year period.

The construction of a transition period involves two variables that can be manipulated to cushion (to varying degrees) the effects of moving to an average-rate payment. These variables include:

- o Length - The amount of time required to phase in the national average rate and phase out the hospital-specific payment. The longer the period, the greater the moderating effect on hospitals with currently high capital costs.
- o Blend - The relationship between the average national rate and the hospital-specific payment during the transition period. Even blending means that the national average rate would be phased in using equal percentage increments per year; for example, 20 percent increments for 5 years. Uneven blending would phase in the national rate either more slowly or more quickly during the initial part of the transition. For example, in a five-year transition, instead of paying 20 percent of the national rate the first year, as would occur with even blending, only 10 percent would be paid; in the last the year of transition, instead of paying 80 percent of the national rate, 90 percent would be paid. An even transition was used to implement prospective payment for operating costs. An uneven transition with greater emphasis in early years on the hospital-specific portion of the rate would favor hospitals with existing high investment levels, but would delay infusion of the additional capital-related dollars to hospitals with low investment levels.

Hold-Harmless Transition Provision. Some hospital industry representatives advocate a hold-harmless provision for capital investments made prior to the effective date of a new capital policy. Under those provisions, such capital expenditures would continue to be reimbursed on a cost basis until fully depreciated. Payment of average amounts for capital under DRGs to reimburse new capital expenditures would be gradually phased in. When "old" and "new" capital are distinguished and reimbursed differently, the capital pass-through period for old capital may be viewed as the transition period. This approach eases the transition into a new capital policy since all committed capital expenditures are passed through on a cost basis. The length of the transition is hospital-specific and depends on the remaining depreciable life of each hospital's current assets.

By separating old and new capital for reimbursement purposes, this transition approach could extend the cost-based reimbursement system for individual capital expenditures for as long as 30 to 35 years. In addition, under industry proposals, hospitals would not receive the percentage add-on until they made a new investment. Thus poorly capitalized hospitals that realize minimal cost-reimbursement revenue for old capital and that lack access to capital markets are locked into their current investment level. Such hospitals would not benefit from the increased average revenue that a prospective average rate would provide unless they could find the resources to first finance new capital investment. Those hospitals that have recently made large capital investments or that are systematically highly capitalized would benefit by the extended transition period because they would have a much longer period to adjust to the new average level. This approach would be exceedingly difficult to administer since it would require an assessment of each hospital's capital assets at time of implementation and ongoing cost reporting for "old" assets.

#### OTHER METHODS OF PAYING FOR CAPITAL

Combination Method. This approach is a hybrid which combines the capital cost pass-through and the uniform percentage add-on. It would continue the cost-based pass-through for plant and fixed equipment and impose an average percentage level only for movable equipment. This method distinguishes among uses rather than sources of capital. Depreciation and interest for plant and fixed equipment would be paid under the current Medicare cost-based reimbursement method. This method has been supported by the Healthcare Financial Management Association and the American Health Planning Association.

A variant of this approach would reverse the combination approach to provide a percentage level for plant and fixed equipment and a pass-through for movable equipment.

Discussion of the Combination Method. With the combination approach, the incentives for inefficiency of cost-based reimbursement are continued, at least in part, and new perverse incentives may be introduced. Combining a formula for movable equipment with the current Medicare payment method for plant and fixed equipment continues existing incentives for approximately two-thirds of current capital investments. Differential treatment of capital components could be more interventionist than the present uniform cost-based reimbursement system, which is neutral with regard to uses of capital. It may prompt switching of investments currently classified as movable to those classified as fixed, since these categories are not completely exclusive of each other.

Capital Fund Method of Payment. Under a capital fund approach, either the Federal or State government would administer a fund established solely for the purpose of distributing payments to

hospitals for capital expenses. Regardless of which level of government administered the fund, criteria would need to be established in statute or regulations governing qualification for and distribution of payments to hospitals.

Discussion of the Capital Fund Method. This is a fundamentally regulatory approach which would likely require extensive reporting on the part of hospitals and correspondingly extensive review on the part of agencies responsible for distributing Medicare capital funds. Allocation by distributing (possibly health planning) agencies could undermine hospital access to credit markets -- and thus to quality care -- if the level of the fund or the allocation process were viewed as arbitrary or simply unpredictable from year to year. Future Medicare patients would not be assured access to quality care; in addition, payments would not necessarily be tied to volume rather than investment levels.

Asset Age Method of Payment. This proposal, offered by a hospital industry organization, is more accurately characterized as a distributive rather than payment mechanism. It would be combined with the uniform percentage approach, and would make the average payments more hospital-specific. The uniform percentage payment incorporated into the DRG payments would be adjusted to reflect the composite (average) asset age of each hospital. A hospital would calculate its asset age by weighting the age of each asset by its dollar value. This would be reported to the Federal government and used in constructing an index based on the distribution of hospitals nationally according to their composite asset age and their capital to operating cost ratios. Each hospital would recalculate its asset age annually, and these figures would be used to calculate an index by which individual hospitals' average payment levels would be adjusted upward or downward. The effect of this approach would be to make higher payments for capital to those institutions with lower average asset age (newer assets), when interest payments on debt-financed investment are greatest.

Discussion of the Asset Age Method. The asset-age-adjusted formula attempts to address the "lumpiness" problem and the comparatively high capital costs of recently modernized hospitals. The lower the weighted asset age of the hospital, the higher the capital payment. This approach rewards investment and benefits those hospitals that are currently in the best position to modernize or undergo major replacement projects. Assuming a fixed capital payment level, the newer and financially more resourceful hospitals would continue to absorb the largest share of the Medicare capital payments. Older and financially stressed hospitals would continue to receive low capital payments. This formula would perpetuate the maldistribution of Medicare capital payments that exists under cost reimbursement.

Replacement Cost Depreciation. Another method for determining the level of capital payment under either a hospital-specific



cost-based method or under an average-rate payment method would be to calculate it based on replacement cost depreciation. This method involves a shift from the current mixture of paying for capital use (depreciation) and source (interest) to a system based wholly on use. Payment for depreciation expenses is designed to reimburse hospitals for the cost of using their assets based on historical investment cost. If there were no inflation, replacement cost depreciation would equal historical depreciation. However, because of inflation, the amount needed to replace an asset is higher than the original purchase price.

Discussion of Replacement Cost Depreciation. There are numerous streams of payment that could constitute replacement cost depreciation. Basing a capital payment level on replacement costs would involve estimating the capital asset base for a particular period and the associated replacement cost depreciation level. This approach is extremely problematic because of variations in the timing of investments, and differing useful life assumptions for various hospital assets. During the first year of a replacement cost reimbursement policy, hospitals whose assets are at the end of their useful lives present the problem of whether Medicare should provide enough to entirely replace such assets in that year, or whether to pay only for a portion of them. Lastly, the perception of what constitutes full depreciation compensation for replacement will change over time, as actual building cost inflation varies and future projections change. Finally, this approach would require difficult and controversial normative judgments about whether the base capital stock should, in fact, be replaced and at what rate. Adoption of the replacement cost depreciation approach is estimated to increase Medicare capital payments in the aggregate, causing the national Medicare capital to operating cost ratio to rise by about one and one-half percent over a ratio based on current policy.

## CHAPTER VI

### RECOMMENDATION

In Chapter V, we described several methods for incorporating capital-related expenses into the Medicare prospective payment system. One method, cost-based reimbursement with or without limits and controls, would continue to reimburse capital costs independently of the basic DRG payment methodology. The other approach, the average-rate method, would pay for capital prospectively. The latter method requires decisions regarding the payment mechanism, the level and distribution of payments, the structure of a transition period and the relationship of the capital payment to the current prospective payment system.

Although the Congress requested only a study of methods for incorporating payments for capital into the prospective payment system, we chose to examine a broad range of options for making capital payments to hospitals. From our analysis, we have concluded that most of the possible methods for paying hospitals for capital related expenses are not consistent with the goals of administrative simplicity, flexibility for hospital management, predictability of payment, and incentives for efficiency.

Based on analyses conducted pursuant to our study contract with ICF, Inc., using their Hospital Investment Simulation Model, we believe that amounts for capital can be averaged into the DRG payments. We have concluded that such a change in Medicare reimbursement policy for hospital capital would be a major step toward a more rational and less interventionist role for government as the major payer for hospital services. It is also a necessary next step for attaining the efficiency and quality goals of the prospective payment system.

This chapter details conceptual specifications for incorporating Medicare payment for capital into DRG payments. In the course of the decisionmaking process, we will continue to refine and perfect our approach. In some cases, the process may significantly modify these conceptual specifications. Similarly, the Department will be refining preliminary estimates contained in this report, which will be subject to detailed actuarial review.

As discussed in the previous chapter, cost reimbursement for capital has several undesirable attributes. In reimbursing an individual hospital for depreciation and interest, Medicare reimburses hospitals on the basis of past investment. This policy insulates hospitals from the financial risk of a poorly conceived or poorly timed investment.

For example, Medicare subsidizes the fixed costs of hospitals associated with excess and unused capacity. In effect, this subsidy of total fixed costs has helped maintain the financial solvency of hospitals that suffer from very low occupancy levels

in geographical areas with a significant number of excess beds. In general, if a hospital's fixed costs or overall debt service expenses are being covered, it can financially survive prolonged periods of low occupancy, provided its staffing and other operating costs are aligned with its actual occupancy level, and not its total bed capacity. In competitive markets and areas with good access to hospital care, Medicare has been inappropriately subsidizing underutilized hospitals that simply are not able to attain a reasonable market share. This subsidy has been estimated by Medicare studies to range from \$8,400 to \$27,900 per bed per year, depending on the staffing level associated with the bed. These estimates came from Mark Pauly's article in Business and Health ("Policy Lessons from Studying Hospital Costs", September 1985), and from conversations with Mark Pauly.

Cost based reimbursement also produces enormous inequities in the ability of different classes of hospitals to make capital investments because reimbursement to hospitals is not directly related to demand for service. Since payments are based on each hospital's financing costs for capital, on the value of its current assets and on its total bed capacity, there are large disparities in Medicare payments for capital to different classes of hospitals for reasons unrelated to the care of Medicare patients. Medicare makes high capital payments, on average, to many hospitals primarily because those hospitals in the past have been credit-worthy, have had good access to capital markets, and have used that access to invest heavily in capital inputs. On the other hand, Medicare makes low capital payments to hospitals such as large public hospitals and to other hospitals which are less able to obtain financing for capital investment.

In sum, the current cost pass-through for capital displays the same problems and liabilities as did the pre-prospective payment system for operating costs. It provides the wrong kind of incentives for hospital managers; it requires detailed cost reporting; and it makes payments that are difficult to predict for Federal budget purposes.

Medicare's cost reimbursement system subsidizes hospitals which are not economically viable and which are not needed for patient care. These capital subsidies can better be used for patient care in economically viable hospitals. In this time of scarce resources, Medicare cannot continue a policy that subsidizes inefficient economic units that are not needed to maintain access to high quality care. Further, the Federal government cannot sustain a policy that rewards hospitals based on their ability to access capital markets, instead of rewarding them for the provision of care to Medicare beneficiaries.

Our proposed payment system would break the link which relates Medicare capital payments to the value of a hospital's current assets rather than to its Medicare volume and case-mix. Currently, assuming the identical Medicare utilization, a high capital asset base generates high capital-related revenues, while a low capital asset base generates low capital-related revenues. With our policy, payment for capital would be linked directly to absolute Medicare volume (i.e., discharges) rather than Medicare's relative share regardless of total capacity.

#### RECOMMENDATION

The Department's recommendation is based on our conclusion that the hospital industry is currently experiencing a significant and costly excess capacity. There are currently 4.5 beds per 1,000 population nation wide and many areas are experiencing significantly higher rates. Current demand for beds is only 2.7-2.9 per 1,000 population and is expected to decline below this rate with the continued growth in alternative site providers, such as ambulatory surgery centers.

Excess beds including the associated staff and equipment greatly decrease the efficiency of the care provided. In fact, excess capacity may tempt hospitals to provide more care than is medically necessary thereby increasing the risk of an adverse medical outcome.

In order to be a prudent purchaser of hospital services, Medicare should correct for the inefficiencies created by its current reimbursement policy, but it must do so without reducing either the quality of care provided or access to that care for Medicare beneficiaries.

As requested, we recommend to the Congress a proposal that would accomplish the following:

- o Establish an all-inclusive prospective payment amount that would pay hospitals an average amount per Medicare discharge. This payment amount would not distinguish between payments for capital and operating expenses and would be neutral with respect to hospitals' prior success or failure at accessing capital markets.
- o Reduce Medicare payments to hospitals for capital by establishing a national payment amount that does not include payments for return on equity for investor owned hospitals and payments to hospitals for interest on funded depreciation.
- o Provide for an adequate transition period from current cost-based reimbursement to the prospective payment system in order to allow hospitals the necessary time

to adjust to the new payment system while assuring that hospitals do not over-invest during the transition.

- o As appropriate extend special rules regarding capital payments to hospitals that are subject to these rules under the prospective payment system for operating costs.

#### OUTLINE OF THE RECOMMENDED POLICY

Mechanism. Build into the non-labor component of the standardized payment amounts for rural and urban hospitals (separately) an amount for capital. This amount combined with the current non-labor amount will constitute the standardized payment amount for Medicare PPS hospitals. After inclusion in the standardized amount, capital payments will be indistinguishable from other non-labor payments. Table VI-I depicts how the payment mechanism would operate when fully implemented.

Payment Levels. During the transition, separate standardized capital payment amounts will be established for rural and urban hospitals, as designated by current PPS regulation. The separate rates for urban and rural hospitals would be developed in a manner which is consistent with current PPS policy for operating expenses. These standardized payment amounts for fiscal year 1987, the first transition year, will be established from 1983 audited cost report amounts updated to 1986 by a capital market basket for fiscal years 1984, 1985, and 1986. Aggregate return on equity and interest offsets, chief among them interest offsets on funded depreciation amounts, will be excluded from these computed standardized amounts.

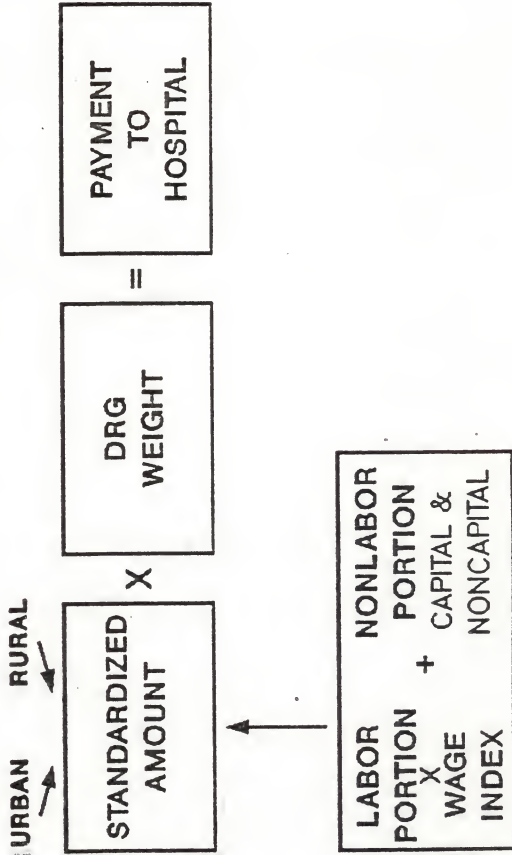
Transition. The transition period is designed to fully implement an all-inclusive prospective rate for Medicare by 1991. The transition involves separate schedules for phasing out hospital specific payments for depreciation and interest, and for return on equity and interest offsets on funded depreciation. Payment levels for depreciation and interest, and for Return on Equity (ROE) and Interest Offsets (IO) will be established for each hospital based on audited cost reports. During the transition, these two unique HSP amounts will be updated from year to year after 1986 using the actual hospital capital market basket. In each year of the transition, they will constitute a reasonable cost growth limit on each hospital's costs. Hospital will be paid the lesser of the sum of their two payment amounts, or their actual audited capital costs, after the appropriate blend proportions have been applied.

The setting of reasonable cost limits for hospitals has long been a Medicare tradition. Section 223-type limits were imposed elsewhere when cost reimbursement growth was as large as 15 to



TABLE VI - I

# PAYMENT CALCULATION



20%. There is now evidence that capital expenditures have increased substantially in recent years, while occupancy rates have declined. It now seems apparent that in order to promote efficiency in hospital investment management, 223-type limits are an appropriate mechanism.

The blending proportions during transition are depicted below:

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 Table VI-2  
 Blending Percentage for the Transition Period

	National Rate <u>Portion</u>	HSP Depreciation Interest <u>Portion</u>	HSP Return on Equity Interest Offset <u>Portion</u>
FY 1987	20%	80%	75%
FY 1988	40%	60%	50%
FY 1989	60%	40%	25%
FY 1990	80%	20%	0%
FY 1991	100%	0%	0%

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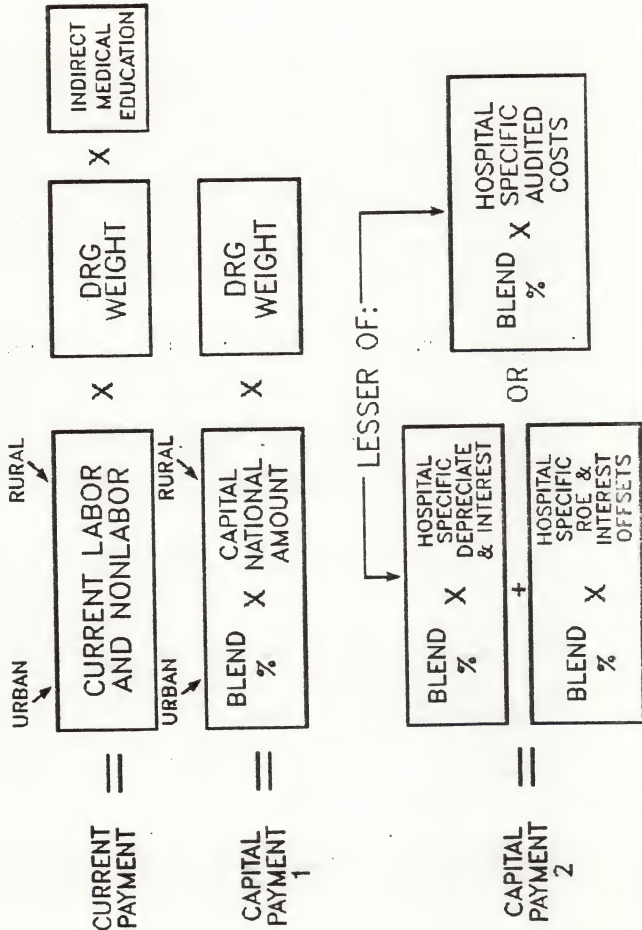
For example, hospitals in 1987 will receive 75% of their ROE-IO plus 80% of their 1986 depreciation and interest net of offsets for funded depreciation trended forward, (or 80% of the actual amount if it is less) plus 20% of the national rate. In 1991, they will receive a single payment for each discharge equal to the sum of the national rates for capital and for operating costs. Table VI-3 depicts graphically how the transition period would work.

In FY 1986, hospitals will be paid their actual costs for Depreciation, Interest, ROE, and Interest Offsets under the current reasonable capital cost procedures. The transition to the national rate will be implemented beginning October 1986 (FY 1987) according to each hospital's accounting year.

Distribution. The applicable DRG weights for the year in question will be used. These weights are based on hospital charges and on average reflect each hospital's estimate of the relative operating and capital resource consumption associated with each Medicare service, discounted or enhanced by the market value of the service category.

TABLE VI-3

## TRANSITION PAYMENT METHOD



Update Factor. A capital component will be incorporated into the hospital market basket. The PPS standardized amounts will be updated during the transition and subsequent years by the DRG update factor as determined by the Secretary of HHS. The Secretary will take into consideration the capital needs of the hospital industry when establishing this factor. The HSP amounts during the transition will be updated each year by the capital component of the hospital market basket. Capital related items will be incorporated into the Medicare hospital market basket. Disaggregation of the standardized amounts will be accomplished as it is under current policy. The relative labor and nonlabor proportions found in the market basket will be applied to the standardized amounts to produce the separate labor and nonlabor amounts used to make PPS payments to hospitals.

#### DISCUSSION OF THE RECOMMENDATION

Mechanism. Medicare payments for a share of capital expenses incurred by hospitals represent payment for a necessary and legitimate hospital resource employed in patient care. We have therefore concluded that it is appropriate for the Medicare program to continue to recognize a portion of the capital costs incurred by hospitals in providing patient care. Our recommendation is designed to address two issues: (1) how to better link the distribution of Medicare capital dollars to a hospital's Medicare admissions and case-mix rather than to its overall pattern of investment; and (2) the overall magnitude or level of that payment.

Our recommendation is designed to systematically establish separate all-inclusive PPS standardized amounts for rural and urban hospitals. These payment amounts will be established to assure adequate revenue for the provision of high quality medical care. After a transition, all participating PPS hospitals will be paid on an average, rather than hospital-specific, basis for both capital and operating costs. This approach complements the incentives for efficiency found in the prospective payment system for operating expenses. It unifies the rate structure and leaves the payment incentives neutral with respect to operating versus capital decisions made by hospital management. It encourages hospitals to make capital investment decisions which are sensitive to market conditions. For example, a hospital might defer new construction when interest rates are high, substitute renovation or modernization for replacement, and evaluate facility design and equipment in regard to cost-effectiveness.

Hospitals currently have available approximately 4.5 beds per 1,000 population. Demand for hospital beds is only about 2.7 beds per 1,000 population, based on a current average occupancy rate of about 62%. The expectation is that despite increased population growth, excess beds per capita will increase because

the availability of ambulatory care services and managed care systems will further reduce the demand for hospital beds. Excess beds, including the extra equipment and staff needed to support the beds, produce significant inefficiency in the care provided, without necessarily improving the quality of care. It is important therefore, if high quality, efficient care is to be provided in the future, that Medicare both change its method of payment and reduce the amount of those payments.

Our proposed payment system would break the link which relates Medicare capital payments to the value of a hospital's current assets rather than to its Medicare volume and case-mix. Currently, assuming identical Medicare utilization, a high capital asset-base generates high capital-related revenues, while a low capital asset-base generates low capital-related revenues. With our policy, payment for capital would be linked directly to absolute Medicare volume (i.e., discharges) rather than Medicare's relative share regardless of total capacity.

Linking the flow of Medicare capital dollars to Medicare discharges and case-mix means that the distribution of capital payments becomes self-regulating. Hospitals that compete successfully for Medicare patients will automatically receive additional Medicare payment for capital as their Medicare volume increases. Correspondingly, over the course of the transition period, those hospitals and areas that serve low numbers of Medicare patients and have overall low occupancy levels (unused capacity) will experience an appropriate decline in Medicare payment.

Certain classes of hospitals that have invested at levels lower than the national average will, to the extent they retain Medicare volume, experience a gradual increase in average Medicare payments. Other classes of hospitals may experience a decline over time in overall average Medicare payments for capital. Since the goal of this policy is to eliminate the distinction between capital and operating payments, the test for hospitals will become one of evaluating the total cost of serving Medicare patients relative to total Medicare payments, with each hospital free to choose the optimal mix of capital and other inputs in order to best provide quality patient care.

Level of Payment. It is proposed that audited fiscal year 1983 cost reports be used for the purpose of establishing a cost per discharge to be included in the non-labor portion of the PPS standardized amounts. As described in Chapter V, there are several ways to develop the average payment level for capital to be employed during and after the transition period. It is our recommendation that the level be derived from the allowable capital cost experience of hospitals under the Medicare program.



The Medicare cost report filed by hospitals for reimbursement purposes provides an extensive and consistently defined base of data upon which to develop average payment amount per discharge:

There are several reasons for selecting audited cost reports from FY 1983. First, 1983 followed more than a decade of steady growth in hospital capital investment and is the last year that occupancy rates reasonably matched available capacity. Second, 1983 reflects hospital investment behavior prior to implementation of prospective payment for operating expenses. We are concerned that PPS, along with recently proposed (but as yet, not enacted) tax code changes, may have significantly distorted the investment behavior of hospital managers since that time.

Throughout the decade of the 1970's and the early 1980's capital related expenditures of hospitals have grown at an average annual rate of about 17% (Table VI-4) according to available American Hospital Association (AHA) data. It is unclear how much of what is included by the AHA as capital expenditures would be recognized as allowable cost under existing Medicare rules. We believe most of this growth has been accomplished by multi-hospital systems, both profit and not-for-profit, which, principally due to their pooled revenues, have been able to access the capital markets.

In 1983, DHHS estimated that Medicare payments for depreciation and interest totaled about \$2.9 billion, or about 40% of total community hospital depreciation expenses. Based on 11.6 million Medicare discharges, Medicare capital payments were estimated to be \$258 per discharge. Since 1983, the rate of growth in hospital investments has not declined. However, Medicare admissions have declined to 11.4 million in 1984 and to 10.9 million in 1985 (6.0%). AHA data show non-Medicare admissions have fallen from 24.6 million in 1983 to an estimated 23.1 million in 1985. Similarly, average length of stay for all admissions has fallen by an estimated 4 days, or 5.5% in the same period. As a result, occupancy rates have slid from 73.5% in 1983 to about 64% in 1985. Occupancy rates are expected to decline to below 60% in 1987, with Medicare admissions essentially stable at 10.8 million.

Because payment per discharge is the ratio of capital costs to discharges, even simply maintaining the existing level of investment after 1983 in the face of declining admissions would produce the perverse effect of increasing the proposed national (i.e., payment per discharge) rate, if any year after 1983 is selected as a base period. This anomaly is exacerbated by the increase in investment since 1983. For example, if 1985, instead of 1983, were selected as the base period it is expected that the \$258 per discharge amount would increase by 37% to \$354 per

discharge.<sup>1</sup> We do not believe that Medicare should build into its future capital payments a baseline that reflects the unjustified investment by the hospital industry between 1983 and 1987. Therefore, we conclude that 1983 is the appropriate base-period for establishing the national standardized amounts for incorporating capital expenses into PPS.

Another reason that we are concerned about post-1983 accounting periods is that hospitals may have adjusted their accounting practices to take advantage of the cost pass-through for capital expenses after implementation of PPS for operating expenses. This could have been accomplished by redefining operating expense items included on pre-1984 cost reports as capital expense items on post-1983 cost reports. There is reasonable flexibility and ambiguity in existing cost reporting rules and regulations to allow for these accounting changes. The rescheduling from an operating expense to a capital cost would have resulted in duplicate payments for some items, since the capital items created by the accounting change would have been included in the original PPS rates when they were established. We are proposing that 1983 audited costs be used so that these duplicative payments are not continued with the inclusion of capital in PPS.

We are also concerned that a hospital's investment behavior may have changed as a result of PPS. Before 1983, when both operating and capital expenses were cost reimbursable under Medicare, investment in either was a neutral decision, although the imposition of cost limits on routine operating costs - but not capital - may have prompted some distortion. An expenditure for either capital or labor generated a dollar of revenue for a dollar of cost. PPS changed that by instituting fixed prices for operating expenses but not for capital expenses. Within this dual system of payment - fixed prices for operating expenses and a pass through for capital costs - there is a strong incentive to reduce labor costs and increase capital costs. Each dollar saved on Medicare's share of labor costs lower costs without changing revenues, thereby increasing net profits. In contrast, every dollar expended on capital increases gross revenues by a dollar, without regard to which investment is the most efficient.

It is recommended that two currently reimbursable items be excluded from the calculation of an average capital cost per discharge. One item is Return on Equity (ROE) payments to investor owned hospitals. The other is the value of the exclusion from income of the interest received by hospitals on funded depreciation accounts. Both payments are conceptually similar in that they represent an incentive by Medicare to

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<sup>1</sup> These numbers are illustrative. They are incomplete since they reflect neither case mix changes nor audited cost report data.

encourage equity versus debt financing of capital investments.

As described in Chapter II, Medicare cost reimbursement principles require payment of a return on net equity to investor owned hospitals. This is designed to encourage the use of investor-generated equity on capital projects. Separately, the Medicare reimbursement principles require that interest expense on indebtedness be reduced by interest income earned from any source, except for interest income earned on funded depreciation.

DHHS estimates that return on equity payments amounted to about \$165 million in 1983, and interest offsets to about \$65 million. Neither amount is appropriate to a prospective payment system which provides its own incentives for prudent investment and should be excluded from the PPS base period amounts for capital. The HHS Inspector General has arrived at a similar conclusion, and Congress in their 1986 session proposed to exclude payments for ROE from the current reimbursement system (using a phase-out schedule identical to our proposal). DHHS preliminary estimates project that elimination of ROE and IO from the 1983 audited payment data will reduce the estimated average per discharge payment by about \$19, from \$258 to \$239. This is based on ASPE's estimated total Medicare costs of \$3.0 billion and discharges of 11.6 million in 1983.

Several alternative indices exist for updating the 1983 cost increase to 1986. These includes a hospital capital index, a total hospital input market basket, American Hospital Association data on historic rates of investment, the consumer price index for all items, for medical case or for hospital room and board, the DRG update factor or any of two or three construction cost indices.

All but the capital market basket were rejected because they did not reflect changes in prices of capital goods or because they were not specific to the hospital industry. The historic rates of change in the capital market basket are shown in the following table along with estimates of depreciation and interest growth from the AHA surveys.

The rates for the remaining two variables using available AHA data are depicted in the following table:

Table VI-4

Capital Growth Rates 1978-1986

<u>CY</u>	<u>Capital Expense Growth Rates*</u>	<u>Capital Component of Market Basket**</u>
1978	16.6%	7.5%
1979	17.1%	9.3%
1980	16.4%	8.9%
1981	13.9%	9.8%
1982	16.0%	8.8%
1983	18.6%	3.4%
1984	16.4%	4.5%

\* From ASPE Tabulations of AHA Annual Files

\*\* From HCFA, (preliminary calendar year estimates). Actual market basket to be used is under study and these rates may change.

Some would argue that the actual historic increases in capital costs should be used to update the urban and rural standardized capital cost amounts to 1986, but these rates reflect unrestrained increases in hospital investment as well as changes in the prices of capital goods. Therefore, the capital market basket was the only really appropriate available index.

Medicare cost reimbursement for capital costs is largely responsible for the economic cost and lost productivity associated with these idle beds and equipment. Whereas the hospital industry is currently approaching an occupancy rate of 60% and declining utilization, other U.S. industries are operating at greater than 80% capacity. According to the Federal Reserve Board, factories making durable goods operate at 78.4% of capacity, nondurable goods factories at 86%, automobile plants at 87.7%, and utilities at 82.7% of capacity. The health care industry is the nation's third largest with revenues in excess of \$350 billion, representing more than 10.4% of GNP. Of this amount, community hospitals account for \$133.5 billion and 3.5% of GNP. The economic cost of supporting a 40% idle capacity in this industry is therefore significant.

This amount of idle capacity found in the hospital industry would be difficult to sustain in any industry that was not guaranteed cost reimbursement for its capital investments. Few other industries are given such a guarantee. Even highly regulated industries such as public utilities are subject to stringent budget review by regulators. In this regard it is important to

note that even with an eighty plus percent utilization for most U.S. industries, many experts do not believe the rate is high enough to justify increased spending on new plant and equipment. Yet the hospital sector continues to spend at historic rates despite declining demand for their services. We concluded that it is undesirable to build these growth rates into a national payment amount and reward the inefficiencies associated with the prior cost reimbursement system, especially after the Congress clearly signaled that changes in hospital capital payments were imminent and that investments undertaken after April 1983 were at risk.

Similarly, we find the actual 1984-1986 growth rates in capital expenditures to be unacceptable. The rate of growth from 1983 to 1984 as voluntarily reported to the American Hospital Association amounted to about 16%. Although we do not yet have growth rates for 1984-1985, the value of bonds issued in 1985 totaled \$21 billion, a 160% increase over 1984 (See Table VI-5). This is more than was invested in any two prior years, and over double the previous high-water mark for hospital investment, which was realized in 1982 when occupancy was 75.3%. This unprecedented growth rate is not solely due to Medicare cost reimbursement but must also reflect industry concern regarding pending tax code changes that would alter the treatment of depreciation, affect the availability of tax exempt financing, and prevent refinancing of current obligations with tax exempt instruments.

Together, these actions would increase the cost of financing available to the industry and probably reduce its availability. As a result many hospitals, particularly multi-hospital systems, appear to have acted to create capital pools to be used to finance future needs, to refinance existing obligations at more favorable rates, and to secure funds for non-hospital related investment. Unlike Medicare cost report data the AHA data do not distinguish allowable inpatient hospital capital from other unallowable capital.

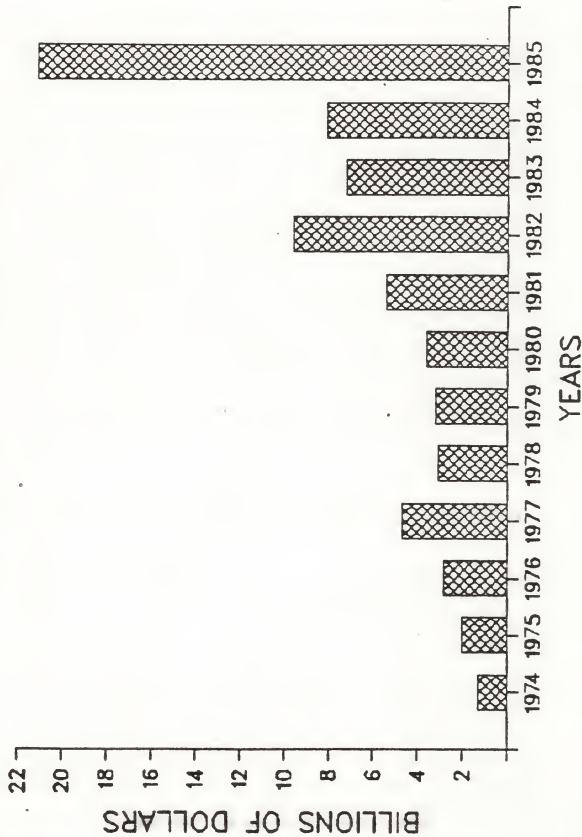
The Department has initiated a study of hospital investment during the 1980-86 period. From this study we hope to better understand the purpose and level of financing that occurred. We are particularly interested in the extent to which financing has been secured for the purpose of developing non-medical investments and alternative sites for the provision of medical services including home health care, ambulatory care centers, diagnostic imaging centers, health maintenance organizations, and for the refinancing of existing debt.

Many industry analysts believe that the growth in alternative site providers will exceed the rate of decline in the use of acute hospitalization. Since Medicare has separate procedures for reimbursing alternative site providers, Medicare capital payment policies for inpatient hospitals should not be confounded



TABLE VI-S

# HOSPITAL BOND ISSUES (excludes refinancing)



by hospital costs incurred in developing alternative sites and not be paid under the proposed policy. We will transmit to Congress under separate cover the results of this analysis of 1984-1986 investment behavior.

The Medicare prospective rate should not be inflated from 1983-1987 to reflect either the venture capital activities into alternative delivery sites or to support the spending spree that apparently occurred in an attempt to beat the effects of Congressional discussions and the House of Representatives' deliberation regarding the treatment of depreciation and tax exempt financing. Therefore it is recommended that a capital component of the hospital market basket be used to update from the payment per discharge from 1983 to 1986. The capital component of the hospital market basket represents the change from year to year of a hospital's cost of making a given capital investment. It is an inflation factor associated specifically with hospital investment. This factor reflects input prices, rather than actual amounts of capital; it parallels the regular hospital market basket. If the cost of investing goes up the capital index goes up and vice versa. It does not reflect artificially high investment rates associated with cost reimbursement.

The following table shows the relative effect of using the capital market basket instead of actual experience:

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Table VI-6

Payments per Discharge, All Hospitals, Preliminary Estimates

	<u>1983</u>	<u>1987</u>
Cost-based (CB)	\$258	\$472
CB-Minus ROE and IO	\$239	\$436
Proposed Average Payment	-	\$417

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The actual national rate amounts to be reported in our proposed June 1986 rule are dependent on our current analysis of 1983 cost reports. Separate urban and rural rates will be used because separate amounts are currently required under PPS. Under this policy the national payment amount per case for rural hospitals is estimated to be significantly less than that for urban hospital payment, \$174 per case in 1986 versus \$297. This differential represents the historic difference between the level of investment in rural versus urban hospitals.

The rural amount is about 59% of the urban amount. This ratio is comparable to the urban/rural relationship exhibited in the the non-labor part of the prospective payments for operating expenses. The non-labor urban amount is \$664 per case in 1986. The rural amount is \$438, or about 52% of the urban amount. In contrast, the difference in the labor related payments to urban and rural hospitals under PPS amounts to about 20%.

Using the estimated national average payment per case, instead of separate urban and rural amounts, would increase payments to rural hospitals by about \$88 per case and lower payments to urban hospitals by about \$35 per case.

The amount will be updated from 1986 to 1987 by the general DRG update factor as determined by the Secretary, after having taken into consideration the industry's capital needs and other factors.

Transition. We propose to provide a transition period for the implementation of an all-inclusive prospective payment system for Medicare, similar to the one used to implement PPS. As described previously in this report, capital investments involve bond covenants and debt repayment schedules of varying but relatively long duration. Therefore, a transition period is necessary so that changes in cash-flow to individual hospitals attributable to the revised capital payment policy occur gradually. This is particularly important with respect to hospitals whose average capital cost-per-discharge amounts are considerably higher than the hospital-specific payments during the transition.

A transition involves the gradual phasing-out of hospital-specific payment amounts and the phasing-in of a national average payment amount. Three variables should be considered when thinking about a transition. They include payment level, length, and blending rates. All three affect the total amount of Medicare payments and the distribution of those payments among hospitals.

Selecting a level of payment for the hospital-specific amount involves a choice between cost reimbursement and the payment of a predetermined base period amount. Cost-based hospital payments will soften the effect of the transition on hospitals with higher than average capital expenses. It will also increase the cost of Medicare, and the cost to beneficiaries who will pay a higher hospital deductible and co-insurance as a result of the additional hospital payments.

We are proposing to update the hospital-specific amounts for 1986 throughout the transition by use of the actual increase in the capital component of the market basket. Arguments for the use of this index here are the same as those set forth above for updating the capital amount per discharge from 1983 to 1986.

Therefore, a separate base period amount will be established for depreciation and interest, and for return on equity and interest offsets from each hospital's 1986 cost report. We believe that the establishment of a base period for HSP capital payments is analogous to the establishment of reasonable cost limits for operating costs. The setting of reasonable cost limit for hospitals has long been a Medicare tradition. TEFRA and Section 223 type limits have been imposed elsewhere when cost reimbursement growth was as large as 15 to 20%. There is now evidence that capital expenditures have increased substantially in recent years, while occupancy rates have declined. It now seems apparent that in order to promote efficiency in hospital investment management, 223-type limits are an appropriate mechanism.

A four-year transition will be used for the depreciation and interest amount and a three-year transition will be employed for the ROE and IO hospital-specific amount. The three-year transition is consistent with the December 1985 conference agreement on this issue. We believe that if a transition is needed to cushion the effect of the elimination of cost reimbursement for depreciation and interest, a similar cushioning is needed for hospitals that have chosen equity financing instead of debt financing. The following example illustrates the relative impact on a hospital that chose equity financing (Hospital B) and a similar hospital that chose debt financing (Hospital A), were no transition provided for ROE or depreciation and interest:

ExampleHospitalA  
(Debt)B  
(Equity)Key Characteristics

Beds (total number)	150	176
Medicare Utilization (% days)	45.4%	45.3%
Net Fixed Assets \$ (million)	\$14.3	\$13.6
Interest on Outstanding Debt	9.5%	10.4%

Financial Structure

Total Debt \$ (million)	\$10.9	\$5.2
Equity \$ (million)	\$ 3.4	\$8.4
TOTAL Capitalization \$ (million)	\$14.3	\$13.6
Ratio of debt to fixed assets (%)	76%	38%

HospitalA  
(Debt)B  
(Equity)

## Medicare Payment for Interest and Return on Equity

Interest, \$ (thousand)	\$470	\$245
ROE, \$ (thousand)	\$177	\$436
Total, \$ (thousand)	\$647	\$681

Effects of Loss of ROE (No Transition)

Amount lost \$ (thousand)	\$177	\$436
Amount lost as a percent of Medicare payments	27%	64%

Based on projections done for DHHS by ICF, Inc., we estimate that since ROE payments represent about a third of all Medicare capital payments to investor-owned hospitals, an immediate termination of these payments along with the interest offset payments would be highly disruptive.

We further propose that for each of the transition years, each hospital will be paid the blended proportion of its hospital-specific amount based on the lesser of: (1) its combined base period hospital specific amount, (Depreciation and Interest) increased by capital market basket growth rates; or, (2) its



audited capital costs for the transition year (excluding ROE and interest offsets), whichever is less. Hospitals that increase their capital expenses during the transition will be paid on the basis of their updated base period amount, plus the national rate. Those that decrease their expenses will be paid on the basis of their actual costs. The intent of this provision is to ensure that any investment during the transition is consistent with the national rates. It also avoids overpayments to hospitals by limiting their hospital-specific payments during the transition.

Table VI-3 illustrated earlier showed how the payment mechanism would operate during the transition. The non-labor component of the standard payment amount would be modified to include two new components: (1) an urban and rural national standardized payment amount for capital; and, (2) a hospital-specific amount that will be the lesser of either a hospital's actual cost, or the updated sum of its 1986 base period amounts for depreciation and interest and for return on equity and interest offsets. Each hospital's 1986 base would be updated each year by the capital market basket.

Table VI-1 illustrated how the non-labor component fits into the entire prospective payment system. Blend amounts for the prospective capital rate, hospital-specific depreciation and interest amounts, and return on equity and interest offset amounts were listed earlier in the Chapter.

Capital expenses will be paid on an estimated basis during the transition and settled retrospectively. After the transition prospective pricing will be used since there will no longer be any payments made based on hospitals' historic costs.

Even-interval blending rates for the hospital-specific and national amounts will be used for both transitions. The specific rates were listed earlier in the Chapter. Several transitions and blend rates were considered. In general lengthening the transition and increasing the hospital-specific weighting in the early years increases payments to hospitals with greater than average capital expenses.

On the other hand, delaying the incorporation of a capital amount into the prospective payment system disadvantages hospitals with less than average capital payments. Most of these hospitals are small, many are rural or urban public hospitals; and they have an above average amount of uncompensated care. Many are considered to be financially distressed and historically have had difficulty accessing capital markets. There is no evidence that PPS has increased this distress. As a result, their current payments per discharge are on the average less than hospitals which have had better access to capital markets. A rapid implementation of an average national amount would increase

payments to many of these hospitals in line with the real long term cost (capital and labor) of providing care to Medicare beneficiaries.

A four-year transition seems a reasonable compromise between the needs of the have and have-not hospitals. This transition does not attempt to guarantee that all hospitals with high capital obligations will have their existing costs covered by Medicare. It is our intent to provide highly leveraged hospitals with adequate time to realign their obligations with their projected revenues. Some hospital managers may face tough decisions during the transition regarding refinancing, merger, or even closure. However, in establishing this policy we believe it to be the responsibility of the hospital industry to bring its capacity into line with demand, and not the responsibility of the Federal Government to continue to fund a growing amount of idle capacity. Moreover, since 1983, hospitals have been on notice with regard to the fact that capital investment may not be treated in the same way as it had been previously.

Update Factor. At present, the Health Care Financing Administration uses a hospital Market Basket Index (MBI) in various stages of the prospective payment rate-setting process. The MBI is used when it is appropriate to adjust payment levels to reflect the effects of inflation on the prices of goods and services hospitals purchase in the provision of medical care.

Over time, the index also reflects changes in the relative importance of the various components in the index. We recommend modifying the current MBI to include a component for capital in order to make the index consistent with the "bundle" of expense items incorporated in Medicare's prospective payments. The specific component to be incorporated is still under study.

Each year the Secretary of HHS makes a determination regarding the appropriate update factor for the prospective payment rates. Payment amounts are adjusted by an update factor composed of the market basket (the price of goods and services purchased by hospitals) and an additional "policy target adjustment factor (PTAF)", which is applied to the market basket update factor. The PTAF accounts for factors such as changes in hospital productivity, technological and scientific advances, quality of health care, and long-term cost-effectiveness of services provided.

Incorporating a capital component into the hospital market basket will assure that the Secretary will annually consider capital costs when establishing the update factor for prospective payments.

Distribution of Payments. DRG weights specify the relative relationship of each Medicare Diagnostic Group to the others.

The weights for each of the 471 categories are normalized on the hospital weighted mean. This means that a category with a value of one will generate for a hospital a payment equal to the National Standardized amount for that type of hospital, independent of any teaching adjustment. A diagnostic group with a value greater than 1 will produce more revenue and those with values less than 1 will produce less revenue.

The underlying principle is that DRG weights should accurately reflect the relative resource intensity of inputs used by hospitals, on average, in caring for different types of Medicare cases. That is, certain types of DRGs require, on average, more operating and capital inputs than others, and the relative weights should properly reflect these relationships.

There are two ways that Medicare can calibrate (determine) the relative value of the DRGs. One method would require Medicare to determine the resource intensity or cost (capital and operating) associated with each DRG. This approach would require a more sophisticated cost reporting system than is currently used by Medicare. Because the reports would require an audit, the data used to establish the weights would be four to five years old. Furthermore, the cost of conducting the audits would be substantial.

The second approach involves the use of information regarding hospital charges. Medicare maintains current information regarding charges on their patient billing file (PATBILL). These data are significantly more current than the cost data and less expensive to collect.

However, charges do not necessarily reflect resource intensity of the DRG's, but rather are associated with the relative market value to a hospital of the services comprising each DRG. A hospital may over- or under-value a DRG for marketing reasons or due to imperfections in its cost accounting system. Fortunately, when averaging across hospitals, differences in the value have tended to average out, and charges correlate highly (.95+) with audited costs. If this correlation is found to be less robust in the future, a persuasive argument can still be made for using charge instead of cost data. Timeliness, auditing expense, and the desirability of having market forces determine the relative value of the diagnostic groups should outweigh any advantage associated with more precise measures of resource intensity.

The original set of DRG weights, used until fiscal year 1986, was based on data from a 20 percent sample of Medicare claims and Medicare cost reports, supplemented by patient discharge records from Maryland and Michigan hospitals. These operating cost weights excluded capital, kidney acquisition and medical education costs. The weights reflected relative resource consumption of operating inputs associated with each DRG.

The weights included in the September 1985 Medicare regulation were created from Medicare inpatient hospital charges. These weights reflect the relative use of capital and can continue to be used without change for the national portion of the DRG capital payment.

Finally, including DRG weights in the reimbursement formula for capital means that hospitals with higher than average case loads will receive higher than average capital payments per case and hospitals with less than average case loads will get less than average payments per case, independent of their volume of Medicare patients. Therefore, payments under our proposed capital policy will be tied to both patient volume and the intensity of a hospital's case load, both desirable outcomes from a competitive market perspective.

#### OTHER MAJOR ISSUES

Implementation of a prospective payment system for capital-related expenses involves several other major issues. We discuss below our preliminary approaches to dealing with these issues. In some cases, we may significantly refine our policies.

Teaching Hospitals. Hospitals that have an approved graduate medical education program receive an additional payment for their indirect teaching costs computed as a percentage of their Federal prospective payment amount including outlier payments. Hospitals will not be paid this amount on the capital (non-labor) portion of their prospective payment. Teaching hospitals will be assured the indirect teaching cost adjustment they would have received before incorporation of capital expenses into PPS. .

Sole Community Hospitals. A hospital may be considered a sole community hospital if its request for classification was received by its intermediary prior to October 1, 1983, and subsequently approved, whether or not the hospital was located in a rural area. Hospitals not approved for exemption must meet one of the following criteria:

- o The hospital is located more than 50 "improved road" miles from other like hospitals; or
- o The hospital is located between 25 and 50 miles from other like hospitals and 25% of the residents or 25% of the Medicare beneficiaries in the hospital service area are admitted to other like hospitals for care; or

- o The hospital is located between 15 and 50 miles from other like hospitals and because of local topography, weather, etc., the other hospitals are generally not accessible for more than one month during a 12 month period.

There are currently 365 hospitals, classified as sole community providers, 338 in rural areas and 27 in an urban area. Hospitals that are classified as sole community hospitals (SCHs) are paid 75% of their hospital-specific operating costs and 25% at the national rate. The integration of capital payments will mean that beginning with the hospital accounting period after October 1, 1986, such hospitals will receive 75% of their hospital-specific costs for capital and 25% of the national rural or urban amount, whichever is appropriate.

New Hospitals. Capital payments for new hospitals will be handled according to a HCFA regulation covering payments to new hospitals under PPS. New hospitals will receive the national payment rate the first year they incur capital expenses.

Cancer Referral Centers. To be a cancer referral center a hospital must have been recognized by the National Cancer Institute of the National Institutes of Health as of April 20, 1983. The hospital must demonstrate that the entire facility is organized primarily for the treatment of and research on cancer. Hospitals meeting NIH's criteria and opting, prior to PPS, for reimbursement on a cost basis subject to the target rate ceiling, will continue to receive cost-based capital payments. At a future date, if they opt to convert to PPS their capital payments will also be converted.

Regional National Referral Centers. Hospitals that provide short-term acute care and meet PPS rules as Regional and National referral centers will have their capital-related expenses incorporated into the PPS. As provided for operating expenses, their national capital amount will be the standardized amount for urban hospitals.

Hospitals in Alaska and Hawaii. In view of the higher costs of living in these two states, an adjustment is allowed to their prospective payment amounts. The adjustment factor for Alaska is 1.25. Hawaii varies from island to island, ranging from 1.10 to 1.25. The adjustment is made by dividing the cost of living adjustment factor into the non-labor portion of the standardized payment amount (currently 20.85% of the average cost per Medicare discharge). Since our capital proposal will increase the non-labor portion by the capital payment per discharge, the cost of living adjustment will be applied to the Federal capital amount for these two states, after the transition.



Health Planning. Nationally, Medicare payments for inpatient hospital services furnished to program beneficiaries represent, on average, about 40 percent of hospitals' inpatient revenues. Currently, a total of 5,405 hospitals, or 81 percent of all hospitals, are on the prospective payment system for operating costs. Incorporating payment for capital-related expenses will unify the rate structure and reinforce the incentives of the current system for hospital efficiency. The prospective payment system has been credited as a major catalyst in prompting hospital managers to assess how best to deliver quality care in an efficient manner.

Given the relative magnitude of Medicare revenues to total hospital revenues, the design of the prospective payment system and its inherent incentives for cost-conscious behavior, a strong case can be made that the prospective payment system is accomplishing what health planning and certificate-of-need under the Public Health Service Act, and the Social Security Act's Section 1122 requirements have never been able to do. Prospective payment substitutes the discipline of competitive market forces for the ineffective and perhaps counter-productive regulatory approaches to control of costs which preceded it.

As discussed in detail in Chapter III, neither the certificate-of-need (CON) "barrier" approach, nor the section 1122 reimbursement sanction approach has been demonstrated to be effective in containing health care costs. CON was implemented by the 1974 National Health Planning and Resources Development Act, and is designed to control market entry with the expectation that limits on entry serve to prevent duplication and reduce excess capacity, thereby containing costs.

There have been numerous studies of health planning and certificate-of-need. The research has produced remarkably consistent results. All studies of sufficient robustness in terms of underlying data, methodology, and analysis so that their findings are statistically generalizable, come to a similar conclusion: CON laws and their implementation have failed to restrain per diem, per case, or per capita hospital costs. It seems likely, in fact, that virtually all "savings" which CON supporters claim to justify the program have proven to be at best ephemeral delays of investments subsequently undertaken or disapprovals of proposed investments which would not have been made even had approval been forthcoming.

A case can even be made that certificate-of-need may have had the perverse effect of increasing costs. Three factors are relevant: first by only delaying investments, the CON process assures that cost increases due to inflation will be experienced. Second, by forcing the substitution of expensive labor for capital in an already labor-intensive industry, total costs are increased. Finally but most importantly, these CON regulations restrict

market forces, deny entry, and reduce responsiveness to demand with the result being reduced competition and increasing costs.

Section 1122 was added to the Medicare/Medicaid statute by the Social Security Amendments of 1972, and thus actually predates CON. It authorizes withholding of capital cost reimbursement from Medicare and Medicaid for investments not approved by a designated State health planning agency. Section 1122, which affects only Federal reimbursements, is more limited in its scope than CON, under which a facility's license to operate is subject to suspension or withdrawal. Because CON is broader in its penalties than section 1122, it is not surprising that States and their health planning agencies have either operated CON and section 1122 programs conjointly, or dropped section 1122 implementation altogether.

Nonetheless, because of cross-ties, incorporation-by-reference, and common regulatory elements, philosophy and approach between CON and section 1122, virtually all the problems, failures, and disincentives inherent in CON have been imported into or inherently exist within section 1122. In 1983, through Section 1886(g) of the Social Security Act, Congress determined that Section 1122 regulatory requirements would be automatically triggered unless a system for incorporating capital into the prospective payment had been established by October 1, 1986. The source of funding for section 1122 would be moved from a Trust Fund tap to general revenues; however no appropriations for this purpose have ever been made.

In summary, we believe that the financial discipline imposed by the Medicare prospective payment system will have considerably more profound and successful effects than market entry regulation under CON or post-hoc reimbursement penalties under section 1122, both of which already have been demonstrated to be failures. For these reasons, the Congress may wish to repeal both the section 1122 and Federal certificate-of-need programs to save CON grant funds, and to reduce unnecessary regulatory burden.

#### EFFECTS OF PROPOSAL ON HOSPITAL CAPITAL REQUIREMENTS AND ACCESS (1986-1995)

From the view of national health policy, two questions should be asked regarding our proposed capital policy. First, will it meet the capital requirements of the industry over the next decade for replacement and modernization of plant and equipment; and second how will it affect access to inpatient services? We argue below that the policy is generous with respect to meeting the industry's capital requirements and that access will not be diminished and may even be improved in some parts of the country.

Capital Requirements. According to AHA data, capital expenditures maintained a nominal growth rate of about 17% over the 1974-1984 decade. If we compare 1984 bond issues of about \$9 billion with 1985 issuance of about \$22 billion it is apparent that the potential growth for 1986 and beyond is significantly greater than the historical growth rate of 17% (Table VI-5). Much of this sudden increase is probably due to factors unrelated to the needs of inpatient care and represents a response to anticipated changes to the tax law and to competitive pressures for hospitals to expand their business into alternative sites.

These estimated hospital capital requirements should not be built into the Medicare inpatient hospital payment system for capital for two reasons. First, because of rapidly declining need for inpatient services there is little justification for capital expenditures even for modernization until the excess bed problem is resolved at the local level. Second, Medicare pays alternative sites (including outpatient clinics, skilled nursing facilities, rehabilitation centers, etc.) capital under separate reimbursement rules. Therefore, hospital expansion into the provision of alternative site services should not be built into the prospective system of payment for inpatient capital expenses. It should be noted, however, that there may be a discrepancy between AHA data and Medicare allowable costs since AHA data do not distinguish allowable from unallowable capital.

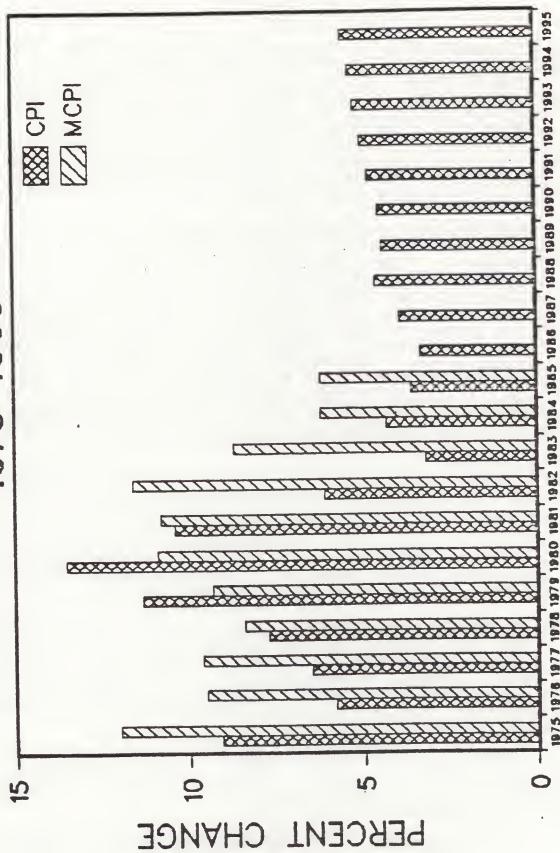
For the purpose of estimating the impact of the Administration's proposal on projected capital needs of hospitals, it is necessary to exclude investment in alternative site providers, and concentrate on the capital requirements to replace existing hospital beds and equipment. In Chapter I of the report (Table I-2) replacement cost estimates for the 1986-1995 period were discussed under different economic and utilization assumptions. These estimates ranged from \$70 billion to \$468 billion.

The low estimate of \$70 billion assumes annual inflation of 5%, a 1% increase for technology improvement, a 30-year renovation cycle, 31.9 million HMO enrollees by 1990, and constrained utilization. These assumptions are very close to current experience on all accounts. Table VI-7 depicts inflation projections for the 1985 to 1995 period, both for the CPI and the Medical component of the CPI.

Tables VI-8A and VI-8B shows hospital admissions and patient days between 1975 and 1984. It is apparent that demand for hospital services has declined since 1981, and is not expected to increase much between 1987 and 1995.

Table VI-9 illustrates the rapid growth that is expected to continue in the HMO sector of the industry over the next decade. Current enrollment of 19 million people in HMOs includes almost 500,000 Medicare enrollees. There is every indication that the

# CPI AND MCPI RATES 1975-1995



YEAR \* PROJECTED FROM 1986 ONWARD

TABLE VI-7

# ADMISSIONS: TOTAL & OVER AGE 65 1975-1991

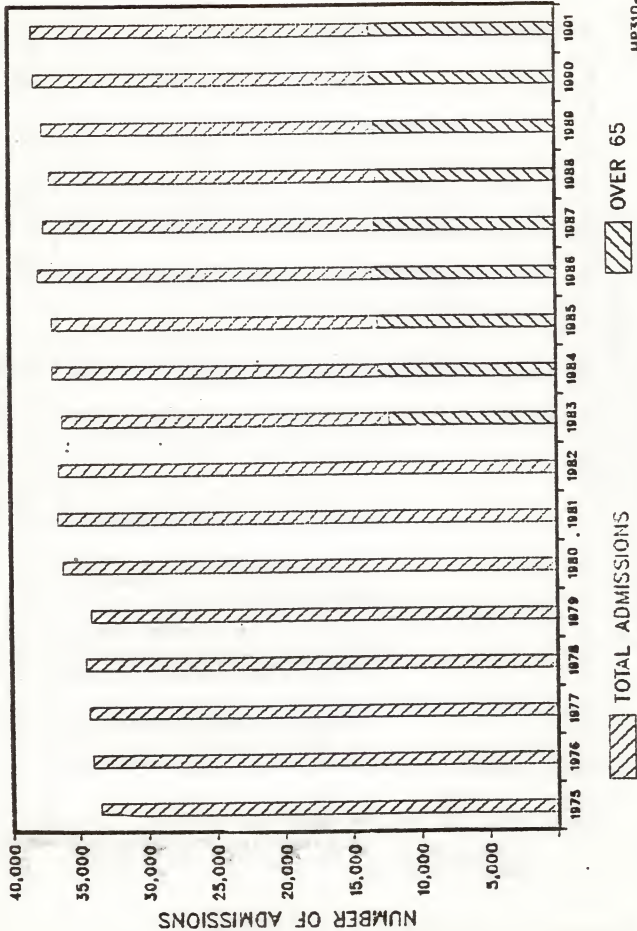




TABLE VI-8B  
**TOTAL PATIENT DAYS**  
**1975-1984**

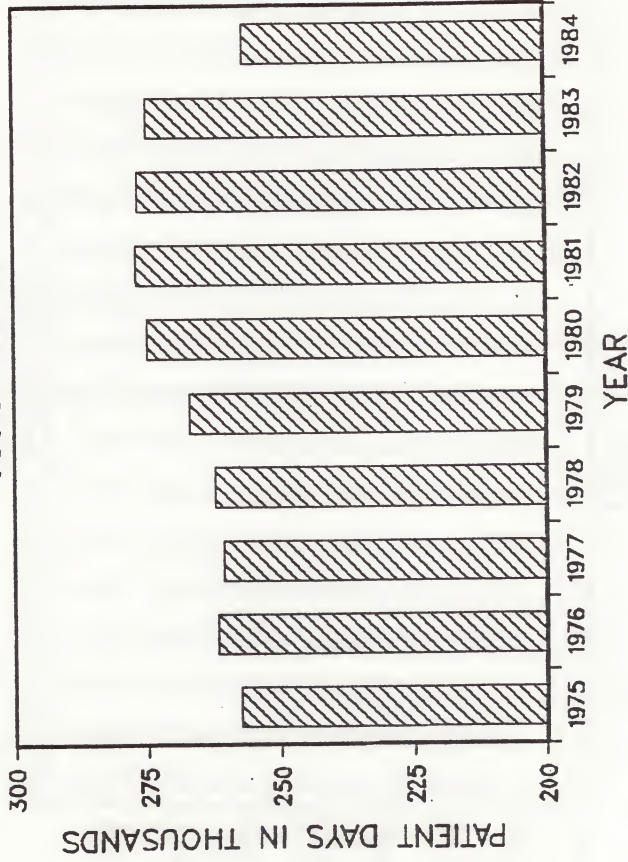
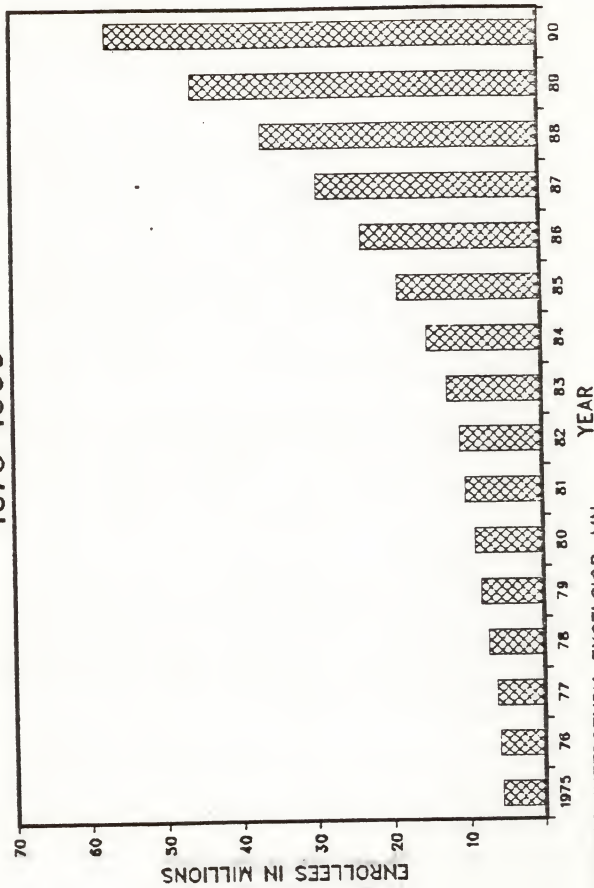


TABLE VI-5

# GROWTH IN HMO ENROLLMENT 1975-1990



SOURCE: INTERSTUDY, EXCELSIOR, MN.  
NUMBERS FOR 1986 ONWARD ARE ESTIMATES.

31.9 million HMO enrollment figure associated with a \$70 billion replacement cost requirement will easily be attained, particularly with the growth in other forms of managed care, such as employer self insurance.

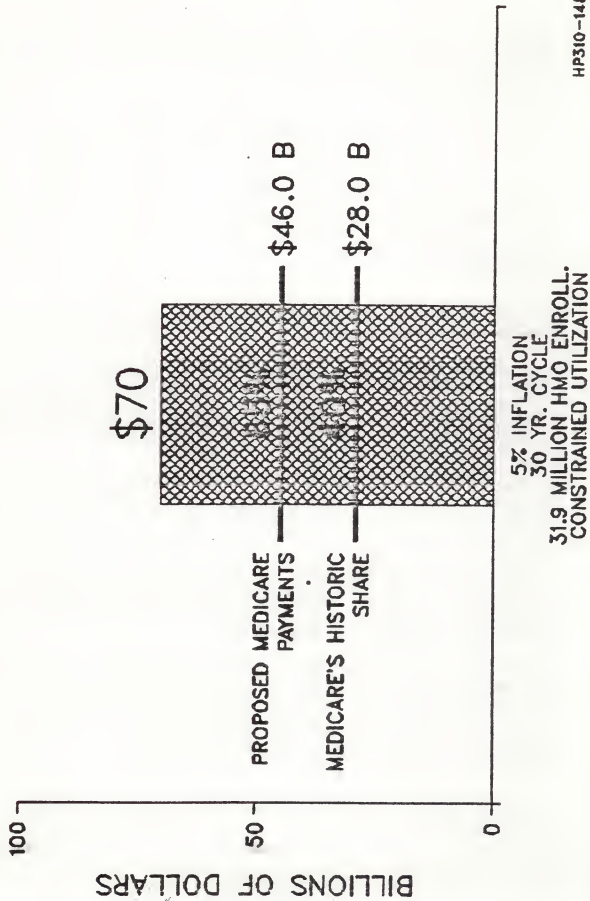
The mid-level estimate of capital requirements does not compare with these trends. The mid-level estimates assume 8% inflation, 2% annual increase for technology, a 25-year renovation cycle, 26.2 million HMO enrollment, and higher "market-like" (i.e., historic) levels of occupancy. This set of assumptions generates a replacement cost requirement of \$184 billion for the decade.

Our proposal will generate about \$46 billion in payments over the decade assuming market growth in the national portion of the payment and a 4 year transition of hospital-specific payment for depreciation and interest. This amount would cover 66% of the industry's replacement needs for inpatient beds and equipment, if the low estimate of \$70 billion is correct. This is significantly higher than the 40% share of capital costs which Medicare has historically borne, or about \$17 billion more than cost reimbursement would have generated (Table VI-10).

If we examine the assumptions carefully it is difficult to see how the proposed policy will not meet the capital requirements for replacement and modernization over the next decade. The HMO and utilization estimates associated with the \$70 billion estimate are conservative in today's environment. The inflation estimate of 5% may prove to be optimistic over the decade. However, increases in inflation will be captured in the Hospital Market basket and should produce a commensurate increase in Medicare payments. Even if one wishes to take a worst case scenario and assume that Medicare will pay hospitals at market basket minus 5% over the decade (i.e., roughly no increase), capital payments would be reduced only by \$3.5 billion to \$42.5 billion. This reduction would still put Medicare payments well above historic reimbursement rates. Medicare would still pay 61% of the 70 billion -- well over its historic share of cost -- and leave hospitals with sufficient capital for investing in new technology in excess of the 1% assumption associated with the \$70 billion estimate. It should also allow them to renovate sooner than the 30 year replacement cycle.

Another way to look at the level of capital payments under the proposal is in terms of its relationship to Medicare payments for operating expenses. In 1983, a preliminary estimate of Medicare capital costs as a percentage of total inpatient operating costs was about 7.4%. Because of declining discharges and the control of PPS payment rates, capital will grow to 12.0% in 1987 if cost-based reimbursement for capital is retained. If cost-based reimbursement is retained but Return on Equity and Interest Offsets are eliminated, capital would be reduced to 11.4%. Under the Administration's proposal it is estimated to be table 10

## HOSPITAL CAPITAL REQUIREMENTS 1986-1995



10.9%, or 3.5% higher than in 1983. The table below shows capital to operating ratios for the period 1987 through 1991. Note that in this table operating payments have been inflated by the hospital market basket.

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 Table VI-11  
 Medicare Capital to Operating Payments\*

	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Cost Reimbursement	12.3%	13.2%	14.0%	14.9%	15.9%
Administration Proposal	10.9%	9.3%	8.6%	8.0%	7.8%

\* Estimated from President's 1987 Budget assumptions  
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Therefore, assuming hospital market basket growth for operating expenses, the ratio of capital to operating payments will be greater in 1991, when the prospective rate is fully implemented, than it was in 1983, the year before PPS was implemented. The Administration proposal does better in terms of capital to operating ratios than pre-PPS experience.

As has been discussed at length above, the dual system of fixed prices for operating expenses and cost reimbursement for capital expenses has changed hospital behavior and distorted the relationship between capital and operating costs. Accelerated investment due to anticipated changes to the tax code may contribute in the future to further distortions of the relationship. The Administration's capital proposal is designed to gradually restore the historic balance between capital and operating expenses, and in the process help to improve the efficiency of hospital operations.

Hospitals have argued that recent investment has not been used for expansion but rather for modernization, downsizing, and expansion into alternative sites and other product lines. The issue of payment for non-inpatient related capital was discussed previously and will not be expanded on here. The issue then is Medicare's payment for these previously obligated expenses, during a transition to the lower national rates.

We are proposing a 4-year transition for depreciation and interest and 3 years for ROE and Interest Offsets. This is projected to reduce Medicare payments by about \$11.4 billion over the next 5 years below the amount cost reimbursement would have paid. This policy will still provide for the projected capital requirements of the industry, but it may not meet the



requirements of hospitals which currently have high capital expenses. Our transition is designed to allow time for these hospitals to restructure their debt or to obtain funding from sources other than Medicare. It is not designed to guarantee reimbursement for all current hospital obligations.

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Table VI-12  
MSA Occupancy Rates - 1984  
(3103 Hospitals)

	<u>Actual</u>	<u>Adjusted*</u>
Under 60%	22 (6.71%)	35 (10.67%)
60-70%	149 (45.43%)	180 (54.88%)
70-80%	129 (39.33%)	107 (32.62%)
80+	<u>28 (8.54%)</u>	<u>6 (1.83%)</u>
SUM	328 100.00%	328 100.00%

\* Adjusted for length of stay.

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Table VI-12, column 1 illustrates the occupancy rates in 1984 of hospitals across each of the 328 Metropolitan Statistical areas. These areas include all of the approximately 3103 urban community hospitals reimbursed by Medicare. From this table it is obvious that almost every MSA already had an excessive number of beds for the efficient provision of care in 1984. The oversupply worsened in 1985.

However, even these rates are high because they are inflated by higher than average admission rates and lengths of stay (LOS) in some of the areas. For example occupancy rates in the 300 New York State hospitals are artificially inflated by significantly higher than average patient days per 1000 population. We believe that this is due to the more highly regulated all-payer system that operates in New York State, without which admission and length stay would decline towards the national average and consequently reduce the occupancy rated of the most of these hospitals. If these above average 1984 LOS and admissions are controlled, then occupancy rates fall farther as shown in Column 2. Both LOS and admission declined further in 1985.

We believe that the rates shown in Table VI-12, column 2, are a realistic expectation of the demand for hospital services over the next decade, if Medicare guarantees hospitals full payment for their currently obligated capital expenses. It is, therefore, better that Medicare reduce payments now for

investments that are in the pipeline, rather than wait until renovated beds and new equipment go on-line and are not used. The excess capacity and painful choices faced by the industry are a monument to the failures of health planning. It is unfortunate that the industry is placed in this difficult position because of decisions made by local health planners but Medicare should not continue to pay indefinitely for these mistakes.

Access to Hospital Care. One concern that we have about reducing payments to hospitals is that access to care might be compromised. That is, although an aggregate \$46 billion payment may be sufficient to meet the replacement and cost needs of the industry over the next decade, hospitals that provide care to specialized populations might be disadvantaged and access could deteriorate. As discussed below, the implementation of a prospective rate will help most hospitals that do not now have access to capital and serve special populations, such as urban public hospitals, those providing large amounts of uncompensated care, and certain rural hospitals.

The financial plight of some of these facilities is not due entirely to a lack of reimbursement from third party payers, but due to low occupancies or higher than average operating costs due to inefficient management. We expect that some of the capital payments resulting from our proposal will be used by these hospitals to subsidize inefficient operations rather than for capital improvement. That would be unfortunate, because in the long term the capital increment obtained will not be sufficient to sustain inefficient operations.

Many of the hospitals in rural areas have low operating costs but their occupancy rates are too low to produce positive operating margins. The incremental increase in payments resulting from this policy should benefit such units. However, many facilities which would benefit from moving to national rates for capital may still not generate positive operating margins without state, local or philanthropic support. Local governments and hospital boards will have to decide whether or not hospitals that are not needed for patient care and not economically viable are worth the subsidies. Local officials should make such decisions without interference from Medicare or national health planners.

As depicted in Table VI-11 excess availability of hospital care in urban areas should assure Medicare beneficiaries more than adequate access to care, even if our proposal forces a restructuring of the capacity to match the demand for hospital services. For example, a typical urban area may include three hospitals, each with more than 400 beds, each with a 60-70% occupancy rate, and each with new capital expenses devoted to new equipment and modernization. Each is asking Medicare and other third party payers to underwrite these activities, although demand for their services is far less than the capability

available. The elimination of one of these three facilities would increase the census of the other two and hence increase their revenues, without a significant increase in operating expenses.

Access to hospital care has two sides to it. The side discussed above involves the lack of access due to the unavailability of needed beds. We think that current excess capacity in both urban and rural hospitals is more than adequate to assure an adequate supply of beds, even if our policy forces a significant reduction in the number of beds. The special situation of sole community hospitals and regional referral centers has been provided for in the policy.

The other side of the issue is the effect that excess beds has on the utilization of services. Roemer noted in his famous study that a built bed is an occupied bed. Wennberg<sup>2</sup> and others have found that the volume of beds per 1000 population is directly related to the volume of surgeries per 1000 population. These higher surgical rates are not attributable to differences in population characteristics, and there are no differences in the historical mortality rates of areas with high and low surgical rates. Without other compelling evidence, the implication from these studies and of our own examination of the relationship between the available hospital beds and surgical rates in an area is that more beds result in more surgeries whether or not they produce positive health outcomes.

We do not favor a long transition to a fully implemented prospective payment amount for capital because we do not believe that hospitals should be guaranteed the cost of current and future unused capacity. This policy will let the market through third party payment rates do what health planning has been unable to accomplish: a reduction in hospital beds and a reduction in hospital costs without an adverse effect on access.

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<sup>2</sup> Wennberg, J. and Gittelsohn, A. "Variations in Medical Care Among Small Areas", Scientific American, 1982.

CLOSING COMMENT

In proposing this approach we have attempted to be realistic about the current financial conditions of hospitals as well as the need to restrain the growth of Medicare expenditures. It is our hope that we have devised a policy that is both realistic and fair to all concerned.

This report is intended to facilitate the decisionmaking process and help us refine and perfect our approach, both as we continue our analysis and in response to reactions and comments stimulated by this report. Input is solicited as we convert the conceptual specifications and preliminary estimates presented in this report into programmatic guidance in the decisionmaking process.

APPENDICES



Appendix A

HOSPITAL INVESTMENT SIMULATION MODEL

## DATA SOURCES

- o American Hospital Association Annual Survey - 1980, 1981, and 1982
- o Medicare Cost Report Abstract - 1980 and 1981
- o Bureau of Census Population Data
- o HMO membership and utilization data
- o Supplementary data on investor-owned hospitals

## OVERVIEW OF THE HOSPITAL INVESTMENT SIMULATION MODEL

- o The Hospital Investment Simulation Model (HISM) is a dynamic model designed to forecast community hospital investment from 1982 through 1995.
- o For the purposes of the forecast, community hospitals are defined as:
  - All hospitals, except federal hospitals (to include State, county, city, city/county, hospital district, church, other not-for-profit, and investor-owned);
  - Hospitals which are general medical (children's and other) OB/GYN, and children's and other in the following categories: eye, ear, nose and throat, rehabilitation, orthopedic, and other specialty; and
  - Short-term hospitals only.
- o Based on matching records from Medicare Cost Reports with the AHA Survey data files, approximately 5,895 community hospitals were included in the simulation. This represents a match of approximately 90.8 percent of all AHA and Medicare records. The match ranges from 72.8 percent for investor-owned hospitals to 93.1 percent for other non-profit hospitals to 94.3 percent for non-Federal hospitals.
- o The model is hospital specific and provide estimates for each of the 50 States and the District of Columbia separately.
- o The model is composed of five distinct and interactive modules:
  - The Demand Module
  - The Capital Requirements Module
  - The Operating Costs and Revenue Module
  - The Capital Allocation Module
  - The Hospital Capital Base Module

## THE DEMAND MODULE

- PURPOSE:** The Demand Module uses base-year utilization rates using AHA and 1980 Census projections. These rates are used to forecast demand for hospital days in each State through 1995. State demand is then allocated to each hospital based upon market share.
- ESTIMATES:**
- o Patient days of care per 1,000 population, over and under age 65
  - o Admissions per 1,000 population, over and under age 65
  - o Emergency visits per 1,000 population
  - o Other outpatient visits per 1,000 population
  - o Inpatient surgery per 1,000 population
  - o Hospital-based outpatient surgery per 1,000 population
  - o Allocates patient days of care to each hospital based on the historical distribution of patients by age group, adjusted to reflect hospitals achieving high occupancy
- ASSUMPTIONS:**
- o Utilization for the under 65 age group remains constant, except for declines which occur due to increased HMO enrollment.
  - o Utilization for the over 65 age group remains constant, except for the hospital-specific changes which occur in response to PPS, which results in lower Medicare length of stay.

## CAPITAL REQUIREMENTS MODULE

**PURPOSE:** The Capital Requirements Module estimates each hospital's potential for capital investment for expansion, renovation and replacement, and modernization based on estimates of age of existing assets, and assumptions regarding replacement cycles and target occupancy rates.

**ESTIMATES:**

- o Expansion requirements using target occupancy rates
- o Renovation and replacement requirements using a national ranking of hospitals based on the relative age index
- o Modernization requirements
- o Operating requirements
  - Working capital
  - Debt repayment

**ASSUMPTIONS:**

- o Target Occupancy, which is based on health planning guidelines, is set at 5 percent above 1982 actual occupancy, but not to exceed 90 percent (except for Maryland and New Jersey).
  - Metropolitan Areas - 80 percent
  - Non-metropolitan Areas - 70 percent
  - Maryland - 87 percent
  - New Jersey - 90 percent
- o Renovation and Replacement Mix is assumed to be 50 percent for renovation and 50 percent for replacement
- o Construction Costs
  - Renovation - \$100 per square foot
  - Replacement - \$100 per square foot
  - Expansion - \$120 per square foot
  - Modernization - \$3,000 per occupied bed
- o Working Capital is estimated as a percent of change in total revenues.



o Debt Repayment

- Old Debt is assumed to be in the sixth year of repayment.
- Cash Dividend Payments for investor-owned hospitals are based on a hospital's net worth and equal to 7.6 percent per year unless the hospital has a negative net worth.

## OPERATING COSTS AND REVENUES MODULE

## PURPOSE:

The Operating Cost and Revenue Module estimates operating costs (labor and other expenses) and capital costs (interest and depreciation), revenues from Medicare and all other sources, other non-operating revenues (gift shop, etc.), cash contributions (philanthropy, government grants, tax appropriations and sale of stock, and forecasts the funds available to each hospital.

## ESTIMATES:

- o Operating costs
  - Labor
  - Other expenses
- o Capital costs
  - Interest
  - Depreciation
- o Revenues
  - Cost reimbursement
  - DRG prospective payment
- o Non-operating revenues and cash contributions
  - Philanthropy and government grants
  - Tax appropriations
  - Funds from stock sales for investor-owned hospitals

## ASSUMPTIONS:

- o Depreciation Expense Calculation assumes historical depreciation trends.
- o Useful Life
  - Modernization - 10 years
  - Renovation and Replacement - 15 years
  - Expansion - 25 years
- o Debt Repayment is assumed to be made in the same amount each year, with a greater amount going toward interest in the earlier years.
- o New Debt Financing
  - Not-for-profit Hospitals - 30 years
  - Investor-owned Hospitals - 20 years

- o Non-Medicare Prices are assumed to be set based upon cost reimbursement principles.
- o Medicare Prospective Payment System
  - LOS - declines at a rate of 10 percent per year to a minimum of seven days.
  - FTE/Occupied Bed - declines at a rate of 10 percent per year to a minimum that varies by hospital type and equals:
    - 3.20 FTEs per occupied bed for investor-owned hospitals,
    - 3.50 FTEs per occupied bed for not-for-profit hospitals,
    - 4.25 FTEs per occupied bed for teaching hospitals.
- o Non-Medicare Hospital Margins are assumed to decline by 10 percent per year to a minimum of 1.00 in several States with more restrictive non-Medicare reimbursement policies.
- o Investment Income from Other Assets is assumed to equal 60 percent of the short term interest rate times other assets.

## CAPITAL ALLOCATION MODULE

## PURPOSE:

The Capital Allocation Module ties together the information generated in the capital requirements and operating cost and revenues modules and estimates the amount of investment in fixed assets.

## ESTIMATES:

- o Sources of funds
  - Cash flow
  - Long-term debt
  - Other assets
- o Long-Term debt (LTD) available to hospitals depends on debt service coverage ratio
- o Allocates sources to uses
  - Modernization
  - Renovation and replacement
  - Expansion

## ASSUMPTIONS:

- o Modernization is assumed to be financed from cash flow or other assets.
- o Renovation, Replacement and Expansion is assumed to be financed by a combination of debt or equity financing for the total amount of investment greater than the hard costs of the project.
- o Debt Service Coverage Ratio must be equal to or greater than 2.0 for a hospital to secure debt financing.
- o Tax-Exempt Financing of the soft costs and issuance cost of roughly 15 percent of hard costs (construction and equipment) are included in fixed assets after construction.
- o Equity Contribution is assumed to be provided through a reduction in other assets at roughly 18 percent of the hard costs.
- o Debt Service and Capitalized Interest Reserves in the net amount of 23 percent of hard costs are assumed to be added to the balance sheet.

- o Long Term Debt of roughly 120 percent of hard costs is assumed to be added.
- o Modernization Investments are assumed to be made up to the lower of modernization requirements or available cash flow plus some portion of other assets.



## HOSPITAL CAPITAL BASE MODULE

- PURPOSE: The Hospital Capital Base Module restates each hospital's fixed assets, long-term debt, working capital and fund balances at the end of each year and then transfers them to the next year's balance sheet. This allows the model to generate projections through 1995.
- ESTIMATES:
- o Uses results from previous modules to restate each hospital's balance sheet
    - Working capital
    - Fixed assets (net and gross)
    - Long-term debt
    - Fund balances
- ASSUMPTIONS:
- o Working Capital in period one is assumed to be each hospital's reported working capital in the previous period plus an amount equal to a percentage change in net patient revenues (either a positive or a negative value).
  - o Gross Fixed Assets are increased by the amount of modernization, renovation and replacement and expansion on line during the year. Modernization and renovation/replacement investments are assumed to become fixed assets immediately, while expansion becomes a fixed asset three years later.

## Appendix B

### ANNUAL CALCULATION (EXAMPLE)

## Appendix B

## I. Annual Calculation:

Assumed National Average Urban Capital Cost per Discharge: \$300

	<u>Hospital A</u>	<u>Hospital B</u>
FY 1986		
(1) Medicare capital-related cost per case (net of interest on funded depreciation)	\$350	\$150
(2) ROE per case	20	0
(3) Medicare share of interest on funded depreciation per case	10	5
(4) ROE & Interest Offset base/case (Line 2 + Line 3)	30	5
(5) Total (Line (1) + Line (4))	380	\$155
Update factor FY 86 - FY 87 = 5.0%		

	<u>Hospital A</u>	<u>Hospital B</u>
FY 1987		
(1) Medicare capital-related cost per case (actual under reasonable cost principles)	\$375	\$145
(2) ROE per case	25	0
(3) Total (Line (1) + Line (2))	\$400	\$145
FY 1987 Payment Calculation		
(1) (a) National Urban Capital Rate updated (\$300 x 1.05)	\$315	\$315
(b) Blending percentage	.20	.20
(c) Blended national rate	<u>63</u>	<u>\$ 63</u>

(2)	(a) Hospital-specific depreciation/ interest cost, traded forward (FY 86 Line (1) x 1.05)	\$367.50	\$157.50
	(b) Blending percentage blended	.80	.80
	(c) Hospital-specific depreciation/ interest	\$294.00	\$126.00
(3)	(a) ROE/IO trended forward (FY 86 Line (4) x 1.05)	\$ 31.50	\$ 5.25
	(b) Blending percentage	.75	.75
	(c) Blended ROE/IO	\$ 23.63	\$ 3.94
(4)	Blended updated base year costs (Line (2)(c) + Line (3)(c))	\$317.63	\$129.94
(5)	(a) Hospital-specific actual audited cost per case	\$400.00	\$145.00
	(b) Blending percentage	<u>.80</u>	<u>.80</u>
	(c) Blended actual cost/case	\$360.00	\$116.00
(6)	"LESSER OF" TEST: Compare Line (4)(c) to line (5)(c). Lesser constrains.		

Blended actual cost per case (\$360)  
is greater than blended base year,  
trended forward (\$317.63)  
(Line (5)(c) > Line (4)(c))

Line (4)(c) limit constrains

Blended actual  
(\$116) is less  
than blended  
base year  
trended forward  
(\$129.94)

Line (5)(c)  
constrains

(7)	Payment	\$380.63 (Line(1)(c)+ Line (6)).	\$179.00 (Line(5)(c) + Line(1)(a))
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